

=> file hcaplus

FILE 'HCAPLUS' ENTERED AT 17:59:13 ON 28 MAR 2003

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FILE COVERS 1907 - 28 Mar 2003 VOL 138 ISS 14

FILE LAST UPDATED: 27 Mar 2003 (20030327/ED)

This file contains CAS Registry Numbers for easy and accurate substance identification.

=> d que 141 - strategy - using polymers from applicants citation to look for art

L8 21 SEA FILE=REGISTRY ABB=ON PLU=ON (129771-65-9/BI OR 1305-78-8/BI OR 1306-05-4/BI OR 1306-06-5/BI OR 1398-61-4/BI OR 41706-81-4/BI OR 471-34-1/BI OR 65408-67-5/BI OR 7758-87-4/BI OR 7778-18-9/BI OR 7789-75-5/BI OR 9004-61-9/BI OR 9005-32-7/BI OR 10103-46-5/BI OR 1306-01-0/BI OR 13767-12-9/BI OR 25618-23-9/BI OR 30846-39-0/BI OR 70524-20-8/BI OR 7757-87-1/BI OR 80137-67-3/BI) } cpds from inventors work in cas citation

L14 6 SEA FILE=REGISTRY ABB=ON PLU=ON L8 AND RSD/FA } has rings

L15 15 SEA FILE=REGISTRY ABB=ON PLU=ON L8 NOT L14

L16 2 SEA FILE=REGISTRY ABB=ON PLU=ON L15 AND "APATITE" } ceramixs

L17 13 SEA FILE=REGISTRY ABB=ON PLU=ON L15 NOT L16

L19 1 SEA FILE=REGISTRY ABB=ON PLU=ON HYALURONIC ACID/CN } Bio-polymers

L20 1 SEA FILE=REGISTRY ABB=ON PLU=ON CHITIN/CN

L21 1 SEA FILE=REGISTRY ABB=ON PLU=ON ALGINIC ACID/CN

L22 10 SEA FILE=REGISTRY ABB=ON PLU=ON L17 NOT (L19 OR L20 OR L21) } CT = controlled terminology

L23 128712 SEA FILE=HCAPLUS ABB=ON PLU=ON CERAMICS+PFT/CT

L24 16476 SEA FILE=HCAPLUS ABB=ON PLU=ON PORE+PFT/CT

L25 4422 SEA FILE=HCAPLUS ABB=ON PLU=ON PORE SIZE/CT

L26 2779 SEA FILE=HCAPLUS ABB=ON PLU=ON PORE SIZE DISTRIBUTION+PFT/CT

L28 12789 SEA FILE=HCAPLUS ABB=ON PLU=ON ("CALCIUM METAPHOSPHATE"/CT OR "CALCIUM PHOSPHATE (CA4H(PO4)3)/CT OR HYDROXYLAPATITE/CT OR "TETRACALCIUM PHOSPHATE"/CT) } ceramixs

L32 10396 SEA FILE=HCAPLUS ABB=ON PLU=ON L19 OR HYALURONIC ACID/OBI

L33 8590 SEA FILE=HCAPLUS ABB=ON PLU=ON CHITIN/OBI OR L20

L34 7774 SEA FILE=HCAPLUS ABB=ON PLU=ON ALGINIC ACID/OBI OR L21

L36 7097 SEA FILE=HCAPLUS ABB=ON PLU=ON BIOPOLYMERS/CT

L37 53258 SEA FILE=HCAPLUS ABB=ON PLU=ON COLLAGEN/OBI

L38 4310 SEA FILE=HCAPLUS ABB=ON PLU=ON ELASTIN/OBI

L39 140602 SEA FILE=HCAPLUS ABB=ON PLU=ON L16 OR L22

L40 1653 SEA FILE=HCAPLUS ABB=ON PLU=ON (L23 OR L39 OR L28) AND ((L36 OR L37 OR L38) OR (L32 OR L33 OR L34))

L41 11 SEA FILE=HCAPLUS ABB=ON PLU=ON L40 AND (L24 OR L25 OR L26) } all cites

Handwritten notes:
cyclic polyesters
ca, P cpds
has rings
ceramixs
Bio-polymers
CT = controlled terminology
PFT = old, new & used for terms
obi = old basic index

=> d que 143

same strategy as L41

L8 21 SEA FILE=REGISTRY ABB=ON PLU=ON (129771-65-9/BI OR 1305-78-8/BI OR 1306-05-4/BI OR 1306-06-5/BI OR 1398-61-4/BI OR 41706-81-4/BI OR 471-34-1/BI OR 65408-67-5/BI OR 7758-87-4/BI OR 7778-18-9/BI OR 7789-75-5/BI OR 9004-61-9/BI OR 9005-32-7/BI OR 10103-46-5/BI OR 1306-01-0/BI OR 13767-12-9/BI OR 25618-23-9/BI OR 30846-39-0/BI OR 70524-20-8/BI OR 7757-87-1/BI OR 80137-67-3/BI)

L14 6 SEA FILE=REGISTRY ABB=ON PLU=ON L8 AND RSD/FA

L15 15 SEA FILE=REGISTRY ABB=ON PLU=ON L8 NOT L14

L16 2 SEA FILE=REGISTRY ABB=ON PLU=ON L15 AND "APATITE"

L17 13 SEA FILE=REGISTRY ABB=ON PLU=ON L15 NOT L16

L19 1 SEA FILE=REGISTRY ABB=ON PLU=ON HYALURONIC ACID/CN

L20 1 SEA FILE=REGISTRY ABB=ON PLU=ON CHITIN/CN

L21 1 SEA FILE=REGISTRY ABB=ON PLU=ON ALGINIC ACID/CN

L22 10 SEA FILE=REGISTRY ABB=ON PLU=ON L17 NOT (L19 OR L20 OR L21)

L23 128712 SEA FILE=HCAPLUS ABB=ON PLU=ON CERAMICS+PFT/CT

L28 12789 SEA FILE=HCAPLUS ABB=ON PLU=ON ("CALCIUM METAPHOSPHATE"/CT OR "CALCIUM PHOSPHATE (CA4H(PO4)3)"/CT OR HYDROXYLAPATITE/CT OR "TETRACALCIUM PHOSPHATE"/CT)

L32 10396 SEA FILE=HCAPLUS ABB=ON PLU=ON L19 OR HYALURONIC ACID/OBI

L33 8590 SEA FILE=HCAPLUS ABB=ON PLU=ON CHITIN/OBI OR L20

L34 7774 SEA FILE=HCAPLUS ABB=ON PLU=ON ALGINIC ACID/OBI OR L21

L36 7097 SEA FILE=HCAPLUS ABB=ON PLU=ON BIOPOLYMERS/CT

L37 53258 SEA FILE=HCAPLUS ABB=ON PLU=ON COLLAGEN/OBI

L38 4310 SEA FILE=HCAPLUS ABB=ON PLU=ON ELASTIN/OBI

L39 140602 SEA FILE=HCAPLUS ABB=ON PLU=ON L16 OR L22

L40 1653 SEA FILE=HCAPLUS ABB=ON PLU=ON (L23 OR L39 OR L28) AND ((L36 OR L37 OR L38) OR (L32 OR L33 OR L34))

L42 35 SEA FILE=HCAPLUS ABB=ON PLU=ON L40 AND SCAFFOLD?

~~L43 17 SEA FILE=HCAPLUS ABB=ON PLU=ON L42 AND (PORE OR POROS? OR~~
~~[POROUS?])~~ 17 cites

} emphasizing
pores,
scaffold

=> d que 148

same strategy as L41

L8 21 SEA FILE=REGISTRY ABB=ON PLU=ON (129771-65-9/BI OR 1305-78-8/BI OR 1306-05-4/BI OR 1306-06-5/BI OR 1398-61-4/BI OR 41706-81-4/BI OR 471-34-1/BI OR 65408-67-5/BI OR 7758-87-4/BI OR 7778-18-9/BI OR 7789-75-5/BI OR 9004-61-9/BI OR 9005-32-7/BI OR 10103-46-5/BI OR 1306-01-0/BI OR 13767-12-9/BI OR 25618-23-9/BI OR 30846-39-0/BI OR 70524-20-8/BI OR 7757-87-1/BI OR 80137-67-3/BI)

L14 6 SEA FILE=REGISTRY ABB=ON PLU=ON L8 AND RSD/FA

L15 15 SEA FILE=REGISTRY ABB=ON PLU=ON L8 NOT L14

L16 2 SEA FILE=REGISTRY ABB=ON PLU=ON L15 AND "APATITE"

L17 13 SEA FILE=REGISTRY ABB=ON PLU=ON L15 NOT L16

L19 1 SEA FILE=REGISTRY ABB=ON PLU=ON HYALURONIC ACID/CN

L20 1 SEA FILE=REGISTRY ABB=ON PLU=ON CHITIN/CN

L21 1 SEA FILE=REGISTRY ABB=ON PLU=ON ALGINIC ACID/CN

L22 10 SEA FILE=REGISTRY ABB=ON PLU=ON L17 NOT (L19 OR L20 OR L21)

L23 128712 SEA FILE=HCAPLUS ABB=ON PLU=ON CERAMICS+PFT/CT

L24 16476 SEA FILE=HCAPLUS ABB=ON PLU=ON PORE+PFT/CT

L25 4422 SEA FILE=HCAPLUS ABB=ON PLU=ON PORE SIZE/CT

L26 2779 SEA FILE=HCAPLUS ABB=ON PLU=ON PORE SIZE DISTRIBUTION+PFT/CT

L28 12789 SEA FILE=HCAPLUS ABB=ON PLU=ON ("CALCIUM METAPHOSPHATE"/CT OR "CALCIUM PHOSPHATE (CA4H(PO4)3)"/CT OR HYDROXYLAPATITE/CT

pick up mobilization

OR "TETRACALCIUM PHOSPHATE"/CT)

L30 4442 SEA FILE=HCAPLUS ABB=ON PLU=ON FREEZE DRYING+PFT/CT } *emphasis on these concepts*

L31 302284 SEA FILE=HCAPLUS ABB=ON PLU=ON POLYESTERS+NT1/CT

L39 140602 SEA FILE=HCAPLUS ABB=ON PLU=ON L16 OR L22

L44 628 SEA FILE=HCAPLUS ABB=ON PLU=ON L14

L45 7910 SEA FILE=HCAPLUS ABB=ON PLU=ON (L44 OR L31) AND (L23 OR L39 OR L28)

L46 43 SEA FILE=HCAPLUS ABB=ON PLU=ON L45 AND (L24 OR L25 OR L26)

L48 1 SEA FILE=HCAPLUS ABB=ON PLU=ON L30 AND L46 *1 cite (applicant)*

=> d que 151 *same strategy as L41*

L8 21 SEA FILE=REGISTRY ABB=ON PLU=ON (129771-65-9/BI OR 1305-78-8/BI OR 1306-05-4/BI OR 1306-06-5/BI OR 1398-61-4/BI OR 41706-81-4/BI OR 471-34-1/BI OR 65408-67-5/BI OR 7758-87-4/BI OR 7778-18-9/BI OR 7789-75-5/BI OR 9004-61-9/BI OR 9005-32-7/BI OR 10103-46-5/BI OR 1306-01-0/BI OR 13767-12-9/BI OR 25618-23-9/BI OR 30846-39-0/BI OR 70524-20-8/BI OR 7757-87-1/BI OR 80137-67-3/BI)

L14 6 SEA FILE=REGISTRY ABB=ON PLU=ON L8 AND RSD/FA

L15 15 SEA FILE=REGISTRY ABB=ON PLU=ON L8 NOT L14

L16 2 SEA FILE=REGISTRY ABB=ON PLU=ON L15 AND "APATITE"

L17 13 SEA FILE=REGISTRY ABB=ON PLU=ON L15 NOT L16

L19 1 SEA FILE=REGISTRY ABB=ON PLU=ON HYALURONIC ACID/CN

L20 1 SEA FILE=REGISTRY ABB=ON PLU=ON CHITIN/CN

L21 1 SEA FILE=REGISTRY ABB=ON PLU=ON ALGINIC ACID/CN

L22 10 SEA FILE=REGISTRY ABB=ON PLU=ON L17 NOT (L19 OR L20 OR L21)

L23 128712 SEA FILE=HCAPLUS ABB=ON PLU=ON CERAMICS+PFT/CT

L24 16476 SEA FILE=HCAPLUS ABB=ON PLU=ON PORE+PFT/CT

L25 4422 SEA FILE=HCAPLUS ABB=ON PLU=ON PORE SIZE/CT

L26 2779 SEA FILE=HCAPLUS ABB=ON PLU=ON PORE SIZE DISTRIBUTION+PFT/CT

L27 24191 SEA FILE=HCAPLUS ABB=ON PLU=ON "PROSTHETIC MATERIALS AND PROSTHETICS"+PFT/CT

L28 12789 SEA FILE=HCAPLUS ABB=ON PLU=ON ("CALCIUM METAPHOSPHATE"/CT OR "CALCIUM PHOSPHATE (CA4H(PO4)3)"/CT OR HYDROXYLAPATITE/CT OR "TETRACALCIUM PHOSPHATE"/CT)

L31 302284 SEA FILE=HCAPLUS ABB=ON PLU=ON POLYESTERS+NT1/CT *NT = narrower terms*

L39 140602 SEA FILE=HCAPLUS ABB=ON PLU=ON L16 OR L22

L44 628 SEA FILE=HCAPLUS ABB=ON PLU=ON L14

L45 7910 SEA FILE=HCAPLUS ABB=ON PLU=ON (L44 OR L31) AND (L23 OR L39 OR L28)

L46 43 SEA FILE=HCAPLUS ABB=ON PLU=ON L45 AND (L24 OR L25 OR L26)

L49 14 SEA FILE=HCAPLUS ABB=ON PLU=ON L27 AND L46

L50 130930 SEA FILE=HCAPLUS ABB=ON PLU=ON GROWTH FACTOR

L51 5 SEA FILE=HCAPLUS ABB=ON PLU=ON L50 AND L49 *5 cites*

=> d que 156 *same strategy as L41*

L8 21 SEA FILE=REGISTRY ABB=ON PLU=ON (129771-65-9/BI OR 1305-78-8/BI OR 1306-05-4/BI OR 1306-06-5/BI OR 1398-61-4/BI OR 41706-81-4/BI OR 471-34-1/BI OR 65408-67-5/BI OR 7758-87-4/BI OR 7778-18-9/BI OR 7789-75-5/BI OR 9004-61-9/BI OR 9005-32-7/BI OR 10103-46-5/BI OR 1306-01-0/BI OR 13767-12-9/BI OR 25618-23-9/BI OR 30846-39-0/BI OR 70524-20-8/BI OR 7757-87-1/BI OR 80137-67-3/BI)

L14 6 SEA FILE=REGISTRY ABB=ON PLU=ON L8 AND RSD/FA

L15 15 SEA FILE=REGISTRY ABB=ON PLU=ON L8 NOT L14

L16 2 SEA FILE=REGISTRY ABB=ON PLU=ON L15 AND "APATITE"
 L17 13 SEA FILE=REGISTRY ABB=ON PLU=ON L15 NOT L16
 L19 1 SEA FILE=REGISTRY ABB=ON PLU=ON HYALURONIC ACID/CN
 L20 1 SEA FILE=REGISTRY ABB=ON PLU=ON CHITIN/CN
 L21 1 SEA FILE=REGISTRY ABB=ON PLU=ON ALGINIC ACID/CN
 L22 10 SEA FILE=REGISTRY ABB=ON PLU=ON L17 NOT (L19 OR L20 OR L21)
 L23 128712 SEA FILE=HCAPLUS ABB=ON PLU=ON CERAMICS+PFT/CT
 L28 12789 SEA FILE=HCAPLUS ABB=ON PLU=ON ("CALCIUM METAPHOSPHATE"/CT
 OR "CALCIUM PHOSPHATE (CA4H(PO4)3)"/CT OR HYDROXYLAPATITE/CT
 OR "TETRACALCIUM PHOSPHATE"/CT)
 L29 35961 SEA FILE=HCAPLUS ABB=ON PLU=ON "MOLDING OF PLASTICS AND RUBBERS"+PFT,NT/CT *)- methods of making*
 L30 4442 SEA FILE=HCAPLUS ABB=ON PLU=ON FREEZE DRYING+PFT/CT
 L31 302284 SEA FILE=HCAPLUS ABB=ON PLU=ON POLYESTERS+NT1/CT
 L39 140602 SEA FILE=HCAPLUS ABB=ON PLU=ON L16 OR L22
 L44 628 SEA FILE=HCAPLUS ABB=ON PLU=ON L14
 L45 7910 SEA FILE=HCAPLUS ABB=ON PLU=ON (L44 OR L31) AND (L23 OR L39 OR L28)
 L55 298 SEA FILE=HCAPLUS ABB=ON PLU=ON L45 AND (L29 OR L30)
~~L56 10 SEA FILE=HCAPLUS ABB=ON PLU=ON L55 AND (PORE OR POROS? OR POROUS?)~~ *10 cites*

=> d que 161

L8 21 SEA FILE=REGISTRY ABB=ON PLU=ON (129771-65-9/BI OR 1305-78-8/BI OR 1306-05-4/BI OR 1306-06-5/BI OR 1398-61-4/BI OR 41706-81-4/BI OR 471-34-1/BI OR 65408-67-5/BI OR 7758-87-4/BI OR 7778-18-9/BI OR 7789-75-5/BI OR 9004-61-9/BI OR 9005-32-7/BI OR 10103-46-5/BI OR 1306-01-0/BI OR 13767-12-9/BI OR 25618-23-9/BI OR 30846-39-0/BI OR 70524-20-8/BI OR 7757-87-1/BI OR 80137-67-3/BI)
 L14 6 SEA FILE=REGISTRY ABB=ON PLU=ON L8 AND RSD/FA
 L15 15 SEA FILE=REGISTRY ABB=ON PLU=ON L8 NOT L14
 L16 2 SEA FILE=REGISTRY ABB=ON PLU=ON L15 AND "APATITE"
 L17 13 SEA FILE=REGISTRY ABB=ON PLU=ON L15 NOT L16
 L19 1 SEA FILE=REGISTRY ABB=ON PLU=ON HYALURONIC ACID/CN
 L20 1 SEA FILE=REGISTRY ABB=ON PLU=ON CHITIN/CN
 L21 1 SEA FILE=REGISTRY ABB=ON PLU=ON ALGINIC ACID/CN
 L22 10 SEA FILE=REGISTRY ABB=ON PLU=ON L17 NOT (L19 OR L20 OR L21)
 L23 128712 SEA FILE=HCAPLUS ABB=ON PLU=ON CERAMICS+PFT/CT
 L26 2779 SEA FILE=HCAPLUS ABB=ON PLU=ON PORE SIZE DISTRIBUTION+PFT/CT
 L28 12789 SEA FILE=HCAPLUS ABB=ON PLU=ON ("CALCIUM METAPHOSPHATE"/CT OR "CALCIUM PHOSPHATE (CA4H(PO4)3)"/CT OR HYDROXYLAPATITE/CT OR "TETRACALCIUM PHOSPHATE"/CT)
 L31 302284 SEA FILE=HCAPLUS ABB=ON PLU=ON POLYESTERS+NT1/CT
 L39 140602 SEA FILE=HCAPLUS ABB=ON PLU=ON L16 OR L22
 L44 628 SEA FILE=HCAPLUS ABB=ON PLU=ON L14
 L45 7910 SEA FILE=HCAPLUS ABB=ON PLU=ON (L44 OR L31) AND (L23 OR L39 OR L28)
 L57 65 SEA FILE=HCAPLUS ABB=ON PLU=ON L45 AND SCAFFOLD?
 L58 43 SEA FILE=HCAPLUS ABB=ON PLU=ON L57 AND (PORE OR POROS? OR POROUS?)
~~L61 3 SEA FILE=HCAPLUS ABB=ON PLU=ON L58 AND L26~~ *3 cites*

=> d que 162

L8 21 SEA FILE=REGISTRY ABB=ON PLU=ON (129771-65-9/BI OR 1305-78-8/BI OR 1306-05-4/BI OR 1306-06-5/BI OR 1398-61-4/BI OR 41706-81-4/BI OR 471-34-1/BI OR 65408-67-5/BI OR 7758-87-4/BI OR 7778-18-9/BI OR 7789-75-5/BI OR 9004-61-9/BI OR 9005-32-7/BI OR 10103-46-5/BI OR 1306-01-0/BI OR 13767-12-9/BI OR 25618-23-9/BI OR 30846-39-0/BI OR 70524-20-8/BI OR 7757-87-1/BI OR 80137-67-3/BI)

BI OR 1306-05-4/BI OR 1306-06-5/BI OR 1398-61-4/BI OR 41706-81-4/BI OR 471-34-1/BI OR 65408-67-5/BI OR 7758-87-4/BI OR 7778-18-9/BI OR 7789-75-5/BI OR 9004-61-9/BI OR 9005-32-7/BI OR 10103-46-5/BI OR 1306-01-0/BI OR 13767-12-9/BI OR 25618-23-9/BI OR 30846-39-0/BI OR 70524-20-8/BI OR 7757-87-1/BI OR 80137-67-3/BI)

L14 6 SEA FILE=REGISTRY ABB=ON PLU=ON L8 AND RSD/FA
 L15 15 SEA FILE=REGISTRY ABB=ON PLU=ON L8 NOT L14
 L16 2 SEA FILE=REGISTRY ABB=ON PLU=ON L15 AND "APATITE"
 L17 13 SEA FILE=REGISTRY ABB=ON PLU=ON L15 NOT L16
 L19 1 SEA FILE=REGISTRY ABB=ON PLU=ON HYALURONIC ACID/CN
 L20 1 SEA FILE=REGISTRY ABB=ON PLU=ON CHITIN/CN
 L21 1 SEA FILE=REGISTRY ABB=ON PLU=ON ALGINIC ACID/CN
 L22 10 SEA FILE=REGISTRY ABB=ON PLU=ON L17 NOT (L19 OR L20 OR L21)
 L23 128712 SEA FILE=HCAPLUS ABB=ON PLU=ON CERAMICS+PFT/CT
 L28 12789 SEA FILE=HCAPLUS ABB=ON PLU=ON ("CALCIUM METAPHOSPHATE"/CT OR "CALCIUM PHOSPHATE (CA4H(PO4)3)"/CT OR HYDROXYLAPATITE/CT OR "TETRACALCIUM PHOSPHATE"/CT)
 L30 4442 SEA FILE=HCAPLUS ABB=ON PLU=ON FREEZE DRYING+PFT/CT
 L31 302284 SEA FILE=HCAPLUS ABB=ON PLU=ON POLYESTERS+NT1/CT
 L39 140602 SEA FILE=HCAPLUS ABB=ON PLU=ON L16 OR L22
 L44 628 SEA FILE=HCAPLUS ABB=ON PLU=ON L14
 L45 7910 SEA FILE=HCAPLUS ABB=ON PLU=ON (L44 OR L31) AND (L23 OR L39 OR L28)
 L57 65 SEA FILE=HCAPLUS ABB=ON PLU=ON L45 AND SCAFFOLD?
 L58 43 SEA FILE=HCAPLUS ABB=ON PLU=ON L57 AND (PORE OR POROS? OR POROUS?)
 L62 ~~2 SEA FILE=HCAPLUS ABB=ON PLU=ON L58 AND (L30 OR INJECT?)~~ 2 cites

=> d que 164

L8 21 SEA FILE=REGISTRY ABB=ON PLU=ON (129771-65-9/BI OR 1305-78-8/BI OR 1306-05-4/BI OR 1306-06-5/BI OR 1398-61-4/BI OR 41706-81-4/BI OR 471-34-1/BI OR 65408-67-5/BI OR 7758-87-4/BI OR 7778-18-9/BI OR 7789-75-5/BI OR 9004-61-9/BI OR 9005-32-7/BI OR 10103-46-5/BI OR 1306-01-0/BI OR 13767-12-9/BI OR 25618-23-9/BI OR 30846-39-0/BI OR 70524-20-8/BI OR 7757-87-1/BI OR 80137-67-3/BI)
 L14 6 SEA FILE=REGISTRY ABB=ON PLU=ON L8 AND RSD/FA
 L15 15 SEA FILE=REGISTRY ABB=ON PLU=ON L8 NOT L14
 L16 2 SEA FILE=REGISTRY ABB=ON PLU=ON L15 AND "APATITE"
 L17 13 SEA FILE=REGISTRY ABB=ON PLU=ON L15 NOT L16
 L19 1 SEA FILE=REGISTRY ABB=ON PLU=ON HYALURONIC ACID/CN
 L20 1 SEA FILE=REGISTRY ABB=ON PLU=ON CHITIN/CN
 L21 1 SEA FILE=REGISTRY ABB=ON PLU=ON ALGINIC ACID/CN
 L22 10 SEA FILE=REGISTRY ABB=ON PLU=ON L17 NOT (L19 OR L20 OR L21)
 L23 128712 SEA FILE=HCAPLUS ABB=ON PLU=ON CERAMICS+PFT/CT
 L26 2779 SEA FILE=HCAPLUS ABB=ON PLU=ON PORE SIZE DISTRIBUTION+PFT/CT
 L28 12789 SEA FILE=HCAPLUS ABB=ON PLU=ON ("CALCIUM METAPHOSPHATE"/CT OR "CALCIUM PHOSPHATE (CA4H(PO4)3)"/CT OR HYDROXYLAPATITE/CT OR "TETRACALCIUM PHOSPHATE"/CT)
 L30 4442 SEA FILE=HCAPLUS ABB=ON PLU=ON FREEZE DRYING+PFT/CT
 L31 302284 SEA FILE=HCAPLUS ABB=ON PLU=ON POLYESTERS+NT1/CT
 L39 140602 SEA FILE=HCAPLUS ABB=ON PLU=ON L16 OR L22
 L44 628 SEA FILE=HCAPLUS ABB=ON PLU=ON L14
 L45 7910 SEA FILE=HCAPLUS ABB=ON PLU=ON (L44 OR L31) AND (L23 OR L39 OR L28)
 L57 65 SEA FILE=HCAPLUS ABB=ON PLU=ON L45 AND SCAFFOLD?

L58 43 SEA FILE=HCAPLUS ABB=ON PLU=ON L57 AND (PORE OR POROS? OR POROUS?)
 L61 3 SEA FILE=HCAPLUS ABB=ON PLU=ON L58 AND L26
 L62 2 SEA FILE=HCAPLUS ABB=ON PLU=ON L58 AND (L30 OR INJECT?)
 L63 38 SEA FILE=HCAPLUS ABB=ON PLU=ON L58 NOT (L61 OR L62)
~~L64 1 SEA FILE=HCAPLUS ABB=ON PLU=ON L63 AND INTERPHASE~~ 1 cite

=> d que 166

L8 21 SEA FILE=REGISTRY ABB=ON PLU=ON (129771-65-9/BI OR 1305-78-8/BI OR 1306-05-4/BI OR 1306-06-5/BI OR 1398-61-4/BI OR 41706-81-4/BI OR 471-34-1/BI OR 65408-67-5/BI OR 7758-87-4/BI OR 7778-18-9/BI OR 7789-75-5/BI OR 9004-61-9/BI OR 9005-32-7/BI OR 10103-46-5/BI OR 1306-01-0/BI OR 13767-12-9/BI OR 25618-23-9/BI OR 30846-39-0/BI OR 70524-20-8/BI OR 7757-87-1/BI OR 80137-67-3/BI)
 L14 6 SEA FILE=REGISTRY ABB=ON PLU=ON L8 AND RSD/FA
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 L21 1 SEA FILE=REGISTRY ABB=ON PLU=ON ALGINIC ACID/CN
 L22 10 SEA FILE=REGISTRY ABB=ON PLU=ON L17 NOT (L19 OR L20 OR L21)
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 L28 12789 SEA FILE=HCAPLUS ABB=ON PLU=ON ("CALCIUM METAPHOSPHATE"/CT OR "CALCIUM PHOSPHATE (CA4H(PO4)3)"/CT OR HYDROXYLAPATITE/CT OR "TETRACALCIUM PHOSPHATE"/CT)
 L30 4442 SEA FILE=HCAPLUS ABB=ON PLU=ON FREEZE DRYING+PFT/CT
 L31 302284 SEA FILE=HCAPLUS ABB=ON PLU=ON POLYESTERS+NT1/CT
 L32 10396 SEA FILE=HCAPLUS ABB=ON PLU=ON L19 OR HYALURONIC ACID/OBI
 L33 8590 SEA FILE=HCAPLUS ABB=ON PLU=ON CHITIN/OBI OR L20
 L34 7774 SEA FILE=HCAPLUS ABB=ON PLU=ON ALGINIC ACID/OBI OR L21
 L36 7097 SEA FILE=HCAPLUS ABB=ON PLU=ON BIOPOLYMERS/CT
 L37 53258 SEA FILE=HCAPLUS ABB=ON PLU=ON COLLAGEN/OBI
 L38 4310 SEA FILE=HCAPLUS ABB=ON PLU=ON ELASTIN/OBI
 L39 140602 SEA FILE=HCAPLUS ABB=ON PLU=ON L16 OR L22
 L40 1653 SEA FILE=HCAPLUS ABB=ON PLU=ON (L23 OR L39 OR L28) AND ((L36 OR L37 OR L38) OR (L32 OR L33 OR L34))
 L44 628 SEA FILE=HCAPLUS ABB=ON PLU=ON L14
 L45 7910 SEA FILE=HCAPLUS ABB=ON PLU=ON (L44 OR L31) AND (L23 OR L39 OR L28)
 L65 11 SEA FILE=HCAPLUS ABB=ON PLU=ON (L40 OR L45) AND L30
~~L66 4 SEA FILE=HCAPLUS ABB=ON PLU=ON L65 AND (FOAM? OR ?SPONGE?)~~ 4 cites

=> d que 172

L8 21 SEA FILE=REGISTRY ABB=ON PLU=ON (129771-65-9/BI OR 1305-78-8/BI OR 1306-05-4/BI OR 1306-06-5/BI OR 1398-61-4/BI OR 41706-81-4/BI OR 471-34-1/BI OR 65408-67-5/BI OR 7758-87-4/BI OR 7778-18-9/BI OR 7789-75-5/BI OR 9004-61-9/BI OR 9005-32-7/BI OR 10103-46-5/BI OR 1306-01-0/BI OR 13767-12-9/BI OR 25618-23-9/BI OR 30846-39-0/BI OR 70524-20-8/BI OR 7757-87-1/BI OR 80137-67-3/BI)
 L14 6 SEA FILE=REGISTRY ABB=ON PLU=ON L8 AND RSD/FA
 L15 15 SEA FILE=REGISTRY ABB=ON PLU=ON L8 NOT L14
 L16 2 SEA FILE=REGISTRY ABB=ON PLU=ON L15 AND "APATITE"
 L17 13 SEA FILE=REGISTRY ABB=ON PLU=ON L15 NOT L16

L19 1 SEA FILE=REGISTRY ABB=ON PLU=ON HYALURONIC ACID/CN
 L20 1 SEA FILE=REGISTRY ABB=ON PLU=ON CHITIN/CN
 L21 1 SEA FILE=REGISTRY ABB=ON PLU=ON ALGINIC ACID/CN
 L22 10 SEA FILE=REGISTRY ABB=ON PLU=ON L17 NOT (L19 OR L20 OR L21)
 L23 128712 SEA FILE=HCAPLUS ABB=ON PLU=ON CERAMICS+PFT/CT
 L28 12789 SEA FILE=HCAPLUS ABB=ON PLU=ON ("CALCIUM METAPHOSPHATE"/CT
 OR "CALCIUM PHOSPHATE (CA4H(PO4)3)"/CT OR HYDROXYLAPATITE/CT
 OR "TETRACALCIUM PHOSPHATE"/CT)
 L31 302284 SEA FILE=HCAPLUS ABB=ON PLU=ON POLYESTERS+NT1/CT
 L32 10396 SEA FILE=HCAPLUS ABB=ON PLU=ON L19 OR HYALURONIC ACID/OBI
 L33 8590 SEA FILE=HCAPLUS ABB=ON PLU=ON CHITIN/OBI OR L20
 L34 7774 SEA FILE=HCAPLUS ABB=ON PLU=ON ALGINIC ACID/OBI OR L21
 L36 7097 SEA FILE=HCAPLUS ABB=ON PLU=ON BIOPOLYMERS/CT
 L37 53258 SEA FILE=HCAPLUS ABB=ON PLU=ON COLLAGEN/OBI
 L38 4310 SEA FILE=HCAPLUS ABB=ON PLU=ON ELASTIN/OBI
 L39 140602 SEA FILE=HCAPLUS ABB=ON PLU=ON L16 OR L22
 L40 1653 SEA FILE=HCAPLUS ABB=ON PLU=ON (L23 OR L39 OR L28) AND ((L36
 OR L37 OR L38) OR (L32 OR L33 OR L34))
 L44 628 SEA FILE=HCAPLUS ABB=ON PLU=ON L14
 L45 7910 SEA FILE=HCAPLUS ABB=ON PLU=ON (L44 OR L31) AND (L23 OR L39
 OR L28)
 L68 2137 SEA FILE=HCAPLUS ABB=ON PLU=ON (L40 OR L45) AND (?PHASE OR
 LAYER?)
 L69 211 SEA FILE=HCAPLUS ABB=ON PLU=ON L68 AND (PORE OR POROS? OR
 POROUS?)
 L70 64 SEA FILE=HCAPLUS ABB=ON PLU=ON L69 AND (SUPPORT OR SCAFFOLD?)

~~L72 17 SEA FILE=HCAPLUS ABB=ON PLU=ON L70 AND 63-7/SC,SX~~ 17 cites

section for pharmaceuticals

=> d que 173

L8 21 SEA FILE=REGISTRY ABB=ON PLU=ON (129771-65-9/BI OR 1305-78-8/
 BI OR 1306-05-4/BI OR 1306-06-5/BI OR 1398-61-4/BI OR 41706-81-
 4/BI OR 471-34-1/BI OR 65408-67-5/BI OR 7758-87-4/BI OR
 7778-18-9/BI OR 7789-75-5/BI OR 9004-61-9/BI OR 9005-32-7/BI
 OR 10103-46-5/BI OR 1306-01-0/BI OR 13767-12-9/BI OR 25618-23-9
 /BI OR 30846-39-0/BI OR 70524-20-8/BI OR 7757-87-1/BI OR
 80137-67-3/BI)
 L14 6 SEA FILE=REGISTRY ABB=ON PLU=ON L8 AND RSD/FA
 L15 15 SEA FILE=REGISTRY ABB=ON PLU=ON L8 NOT L14
 L16 2 SEA FILE=REGISTRY ABB=ON PLU=ON L15 AND "APATITE"
 L17 13 SEA FILE=REGISTRY ABB=ON PLU=ON L15 NOT L16
 L19 1 SEA FILE=REGISTRY ABB=ON PLU=ON HYALURONIC ACID/CN
 L20 1 SEA FILE=REGISTRY ABB=ON PLU=ON CHITIN/CN
 L21 1 SEA FILE=REGISTRY ABB=ON PLU=ON ALGINIC ACID/CN
 L22 10 SEA FILE=REGISTRY ABB=ON PLU=ON L17 NOT (L19 OR L20 OR L21)
 L23 128712 SEA FILE=HCAPLUS ABB=ON PLU=ON CERAMICS+PFT/CT
 L28 12789 SEA FILE=HCAPLUS ABB=ON PLU=ON ("CALCIUM METAPHOSPHATE"/CT
 OR "CALCIUM PHOSPHATE (CA4H(PO4)3)"/CT OR HYDROXYLAPATITE/CT
 OR "TETRACALCIUM PHOSPHATE"/CT)
 L30 4442 SEA FILE=HCAPLUS ABB=ON PLU=ON FREEZE DRYING+PFT/CT
 L31 302284 SEA FILE=HCAPLUS ABB=ON PLU=ON POLYESTERS+NT1/CT
 L32 10396 SEA FILE=HCAPLUS ABB=ON PLU=ON L19 OR HYALURONIC ACID/OBI
 L33 8590 SEA FILE=HCAPLUS ABB=ON PLU=ON CHITIN/OBI OR L20
 L34 7774 SEA FILE=HCAPLUS ABB=ON PLU=ON ALGINIC ACID/OBI OR L21
 L36 7097 SEA FILE=HCAPLUS ABB=ON PLU=ON BIOPOLYMERS/CT
 L37 53258 SEA FILE=HCAPLUS ABB=ON PLU=ON COLLAGEN/OBI
 L38 4310 SEA FILE=HCAPLUS ABB=ON PLU=ON ELASTIN/OBI
 L39 140602 SEA FILE=HCAPLUS ABB=ON PLU=ON L16 OR L22

L40 1653 SEA FILE=HCAPLUS ABB=ON PLU=ON (L23 OR L39 OR L28) AND ((L36
 OR L37 OR L38) OR (L32 OR L33 OR L34))
 L44 628 SEA FILE=HCAPLUS ABB=ON PLU=ON L14
 L45 7910 SEA FILE=HCAPLUS ABB=ON PLU=ON (L44 OR L31) AND (L23 OR L39
 OR L28)
 L68 2137 SEA FILE=HCAPLUS ABB=ON PLU=ON (L40 OR L45) AND (?PHASE OR
 LAYER?)
 L69 211 SEA FILE=HCAPLUS ABB=ON PLU=ON L68 AND (PORE OR POROS? OR
 POROUS?)
 L70 64 SEA FILE=HCAPLUS ABB=ON PLU=ON L69 AND (SUPPORT OR SCAFFOLD?)
 L72 17 SEA FILE=HCAPLUS ABB=ON PLU=ON L70 AND 63-7/SC,SX
~~L73 2 SEA FILE=HCAPLUS ABB=ON PLU=ON L72 AND (L30 OR INJECT? OR
 (LYOPH? OR ?SPONG?))~~ 2 cites

=> s 141 or 143 or 148 or 151 or 156 or 161 or 162 or 164 or 166 or 172-73

~~L76 46 L41 OR L43 OR L48 OR L51 OR L56 OR L61 OR L62 OR L64 OR L66 OR
 (L72 OR L73))~~ 46 cites total

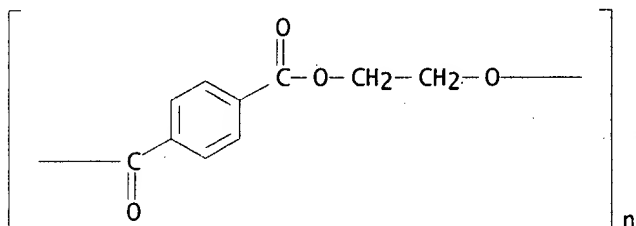
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L76 ANSWER 1 OF 46 HCAPLUS COPYRIGHT 2003 ACS
 ACCESSION NUMBER: 2003:202996 HCAPLUS
 TITLE: Treated fibrous porous material and
 composites therefrom and their preparation methods and
 products
 INVENTOR(S): Halahmi, Izhar; Gross, Mike; Jacobs, Ian Leonard;
 Kadosh, Gaby
 PATENT ASSIGNEE(S): Israel
 SOURCE: U.S. Pat. Appl. Publ., 20 pp., Cont.-in-part of U.S.
 Ser. No. 813,876.
 CODEN: USXXCO
 DOCUMENT TYPE: Patent
 LANGUAGE: English
 FAMILY ACC. NUM. COUNT: 2
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 2003046772	A1	20030313	US 2002-102205	20020321
PRIORITY APPLN. INFO.:			US 2001-813876	A2 20010322

AB. Fibrous porous material with reactive sites and defined
 nanostructure, such as cellulose, lignin, synthetic ceramics, kaolin,
 etc., is treated with a low viscosity org. soln., which comprises org.
 solvent selected from arom. or aliph. ether, ester, ketone, halogenated
 solvent, or alc., an isocyanate component, unsatd. resin, such as hydroxy,
 epoxy, or carboxyl-contg. polyester, and, optionally addnl. additives like
 org. peroxide, styrene, vinyl monomers, organosilane, organozirconium, or
 organotitanium, to obtain fibrous porous material that has
 reduced no. of reactive sites and surface area and higher nitrogen content
 and arom. groups compared to the untreated material. Thus, coupling agent
 composed of hydroxy/carboxyl-contg. unsatd. polyester resins 2.37 kg, MDI
 oligomer 120 g, dicumyl peroxide 36 g, and Bu acetate 630 g, was mixed
 with 25.7 Kg recycled plastic chips composed of 90 % HDPE and 5 % PP,
 heated to 135.degree. under 10 atm. for 5 min after removing Bu acetate to
 create a packed preform, which was then heated to 150.degree. for 45 min
 and pressed at 180.degree. at 45 atm to receive a composite with flexural
 modulus of 2550 MPa, flexural strength of 45 MPa and water absorption <0.5

%.
 IT INDEXING IN PROGRESS
 IT 25038-59-9, PET polymer
 RL: PEP (Physical, engineering or chemical process); POF (Polymer in formulation); PYP (Physical process); TEM (Technical or engineered material use); PROC (Process); USES (Uses)
 (composites made from treated fibrous porous cellulosic materials)
 RN 25038-59-9 HCAPLUS
 CN Poly(oxy-1,2-ethanediylloxycarbonyl-1,4-phenylenecarbonyl) (9CI) (CA INDEX NAME)



=> d ibib abs hitstr 2

L76 ANSWER 2 OF 46 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 2003:5525 HCAPLUS

DOCUMENT NUMBER: 138:61392

TITLE: Composite **scaffold** with a fixation device for the repair and regeneration of tissue

INVENTOR(S): Brown, Kelly R.; Zimmerman, Mark C.; Li, Yufu

PATENT ASSIGNEE(S): Ethicon, Inc., USA

SOURCE: U.S. Pat. Appl. Publ., 12 pp.

CODEN: USXXCO

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 2003004578	A1	20030102	US 2001-893813	20010628
EP 1277450	A2	20030122	EP 2002-254534	20020627

R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR

PRIORITY APPLN. INFO.: US 2001-893813 A 20010628

AB A prosthetic implant having a tissue **scaffold** and a fixation device with a **scaffold support** and an anchoring post. The anchoring post extends from a surface of the **scaffold support** at a selected angle with the **scaffold support** embedded within the **scaffold**. The **scaffold** has a **porous ceramic phase** and a **porous polymer phase**. The polymer is foamed while in soln. that is infused in the **pores** of the ceramic to create a **interphase** junction of interlocked **porous** materials and embedding the **scaffold support** portion of the fixation device. The preferred method for **foaming** is by **lyophilization**. The **scaffold** may be infused or coated

with a variety of bioactive materials to induce ingrowth or to release a medicament. The multilayered **porous scaffold** can mimic the morphol. of an injured tissue junction with a gradient morphol. and cell compn. A soln. of the polymer to be **lyophilized** into a **foam** was prepd., composed of a 95/5 wt. ratio of 1,4-dioxane to 35/65 PCL/PGA (.epsilon.-caprolactone-glycolide copolymer). The soln. was heated and the soln. was filtered. A ceramic tablet of **porous** hydroxyapatite was fabricated. A bioabsorbable fixation component was manufd. by using an **injection** molding process. The polymer used to manuf. the fixation components was a copolymer of 85% PLA and 15% PGA (85/15 PLA/PGA). The fixation component proposed by the foregoing process was threaded through the 2-mm hole prefabricated in the ceramic tablet.

IT 1305-78-8, Calcium oxide, biological studies 1306-05-4, Fluorapatite (Ca₅F(PO₄)₃) 1306-06-5, Hydroxyapatite 7757-87-1 7758-87-4, Tricalcium phosphate 7778-18-9, Calcium sulfate 7789-75-5, Calcium fluoride, biological studies 10103-46-5, Calcium phosphate 13767-12-9, Tetracalcium phosphate
RL: DEV (Device component use); THU (Therapeutic use); BIOL (Biological study); USES (Uses)

(ceramic; composite **scaffold** with fixation device for repair and regeneration of tissue)

RN 1305-78-8 HCAPLUS

CN Calcium oxide (CaO) (9CI) (CA INDEX NAME)

Ca=O

RN 1306-05-4 HCAPLUS

CN Fluorapatite (Ca₅F(PO₄)₃) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
F	1	14762-94-8
O4P	3	14265-44-2
Ca	5	7440-70-2

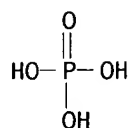
RN 1306-06-5 HCAPLUS

CN Hydroxylapatite (Ca₅(OH)(PO₄)₃) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
HO	1	14280-30-9
O4P	3	14265-44-2
Ca	5	7440-70-2

RN 7757-87-1 HCAPLUS

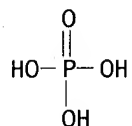
CN Phosphoric acid, magnesium salt (2:3) (8CI, 9CI) (CA INDEX NAME)



3/2 Mg

RN 7758-87-4 HCAPLUS

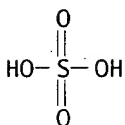
CN Phosphoric acid, calcium salt (2:3) (8CI, 9CI) (CA INDEX NAME)



3/2 Ca

RN 7778-18-9 HCAPLUS

CN Sulfuric acid, calcium salt (1:1) (8CI, 9CI) (CA INDEX NAME)



Ca

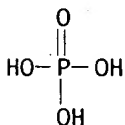
RN 7789-75-5 HCAPLUS

CN Calcium fluoride (CaF₂) (9CI) (CA INDEX NAME)

F-Ca-F

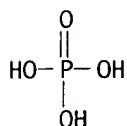
RN 10103-46-5 HCAPLUS

CN Phosphoric acid, calcium salt (8CI, 9CI) (CA INDEX NAME)



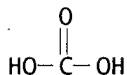
x Ca

RN 13767-12-9 HCAPLUS
 CN Phosphoric acid, calcium salt (3:4) (8CI, 9CI) (CA INDEX NAME)



4/3 Ca

IT 471-34-1, Calcium carbonate, biological studies 30846-39-0
 , Glycolide-L-lactide copolymer 41706-81-4, .epsilon.-
 Caprolactone-glycolide copolymer 65408-67-5,
 .epsilon.-Caprolactone-L-lactide copolymer 80137-67-3,
 .epsilon.-Caprolactone-lactic acid copolymer 129771-65-9,
 .epsilon.-Caprolactone-D-lactide copolymer
 RL: DEV (Device component use); THU (Therapeutic use); BIOL (Biological
 study); USES (Uses)
 (composite scaffold with fixation device for repair and
 regeneration of tissue)
 RN 471-34-1 HCAPLUS
 CN Carbonic acid calcium salt (1:1) (8CI, 9CI) (CA INDEX NAME)



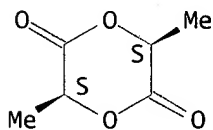
Ca

RN 30846-39-0 HCAPLUS
 CN 1,4-Dioxane-2,5-dione, 3,6-dimethyl-, (3S,6S)-, polymer with
 1,4-dioxane-2,5-dione (9CI) (CA INDEX NAME)

CM 1

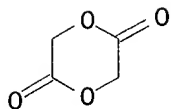
CRN 4511-42-6
 CMF C6 H8 O4

Absolute stereochemistry.



CM 2

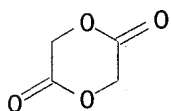
CRN 502-97-6
 CMF C4 H4 O4



RN 41706-81-4 HCAPLUS
 CN 1,4-Dioxane-2,5-dione, polymer with 2-oxepanone (9CI) (CA INDEX NAME)

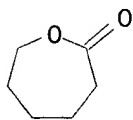
CM 1

CRN 502-97-6
 CMF C4 H4 O4



CM 2

CRN 502-44-3
 CMF C6 H10 O2

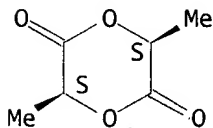


RN 65408-67-5 HCAPLUS
 CN 1,4-Dioxane-2,5-dione, 3,6-dimethyl-, (3S,6S)-, polymer with 2-oxepanone (9CI) (CA INDEX NAME)

CM 1

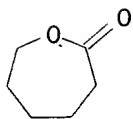
CRN 4511-42-6
 CMF C6 H8 O4

Absolute stereochemistry.



CM 2

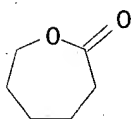
CRN 502-44-3
 CMF C6 H10 O2



RN 80137-67-3 HCAPLUS
 CN Propanoic acid, 2-hydroxy-, polymer with 2-oxepanone (9CI) (CA INDEX NAME)

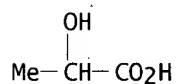
CM 1

CRN 502-44-3
 CMF C6 H10 O2



CM 2

CRN 50-21-5
 CMF C3 H6 O3

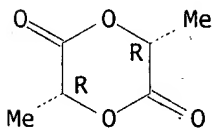


RN 129771-65-9 HCAPLUS
 CN 1,4-Dioxane-2,5-dione, 3,6-dimethyl-, (3R,6R)-, polymer with 2-oxepanone (9CI) (CA INDEX NAME)

CM 1

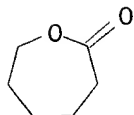
CRN 13076-17-0
 CMF C6 H8 O4

Absolute stereochemistry.



CM 2

CRN 502-44-3
 CMF C6 H10 O2



IT 1398-61-4, Chitin 9004-61-9,
Hyaluronic acid 9005-32-7, Alginic
acid

RL: THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(composite **scaffold** with fixation device for repair and
regeneration of tissue)

RN 1398-61-4 HCAPLUS

CN Chitin (8CI, 9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

RN 9004-61-9 HCAPLUS

CN Hyaluronic acid (8CI, 9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

RN 9005-32-7 HCAPLUS

CN Alginic acid (8CI, 9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

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L76 ANSWER 3 OF 46 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 2003:5239 HCAPLUS

DOCUMENT NUMBER: 138:61423

TITLE: **Porous ceramic/porous polymer
layered scaffolds** for the repair and
regeneration of tissue

INVENTOR(S): Brown, Kelly R.; Yuan, Jenny J.; Li, Yufu; Zimmerman,
Mark C.

PATENT ASSIGNEE(S): Ethicon, Inc., USA

SOURCE: U.S. Pat. Appl. Publ., 17 pp.

CODEN: USXXCO

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 2003003127	A1	20030102	US 2001-892993	20010627
EP 1270025	A2	20030102	EP 2002-254457	20020626
EP 1270025	A3	20030326		

R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT,
IE, SI, LT, LV, FI, RO, MK, CY, AL, TR

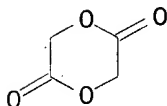
PRIORITY APPLN. INFO.: US 2001-892993 A 20010627

AB A composite **scaffold** with a **porous** ceramic phase and a
porous polymer phase. The polymer is foamed while in soln. that
is infused in the **pores** of the ceramic to create a
interphase junction of interlocked **porous** materials.
The preferred method for foaming is by lyophilization. The
scaffold may be infused or coated with a variety of bioactive
materials to induce ingrowth or to release a medicament. The
multi-layered **porous scaffold** can mimic the morphol.

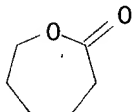
applicant

of an injured tissue junction with a gradient morphol. and cell compn., such as articular cartilage. A bilayered **scaffold** is comprised of a **porous** polymer phase (caprolactone-dioxanone copolymer) and **porous** ceramic phase.

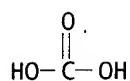
IT 41706-81-4P, Caprolactone-glycolide copolymer
 RL: DEV (Device component use); SPN (Synthetic preparation); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
 (porous ceramic/porous polymer layered
scaffolds for the repair and regeneration of tissue)
 RN 41706-81-4 HCAPLUS
 CN 1,4-Dioxane-2,5-dione, polymer with 2-oxepanone (9CI) (CA INDEX NAME)
 CM 1
 CRN 502-97-6
 CMF C4 H4 04



CM 2
 CRN 502-44-3
 CMF C6 H10 O2



IT 471-34-1, Calcium carbonate, biological studies 1305-78-8
 , Calcium oxide, biological studies 1306-01-0, Tetracalcium
 phosphate 1306-05-4, Fluorapatite (Ca5F(PO4)3) 1306-06-5
 , Hydroxyapatite 1398-61-4, Chitin 7758-87-4
 , Tricalcium phosphate 7778-18-9, Calcium sulfate
 7789-75-5, Calcium fluoride, biological studies 9004-61-9
 , Hyaluronic acid 9005-32-7, Alginic
 acid 25618-23-9, Calcium magnesium phosphate
 65408-67-5, Caprolactone-L-lactide copolymer 70524-20-8,
 Caprolactone-lactide copolymer 129771-65-9, 1,4-Dioxane-2,5-
 dione, 3,6-dimethyl-, (3R,6R)-, polymer with 2-oxepanone
 RL: DEV (Device component use); THU (Therapeutic use); BIOL (Biological
 study); USES (Uses)
 (porous ceramic/porous polymer layered
scaffolds for the repair and regeneration of tissue)
 RN 471-34-1 HCAPLUS
 CN Carbonic acid calcium salt (1:1) (8CI, 9CI) (CA INDEX NAME)



Ca

RN 1305-78-8 HCAPLUS
 CN Calcium oxide (CaO) (9CI) (CA INDEX NAME)



RN 1306-01-0 HCAPLUS
 CN Calcium oxide phosphate (Ca₄O(PO₄)₂) (7CI, 8CI, 9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	1	17778-80-2
O4P	2	14265-44-2
Ca	4	7440-70-2

RN 1306-05-4 HCAPLUS
 CN Fluorapatite (Ca₅F(PO₄)₃) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
F	1	14762-94-8
O4P	3	14265-44-2
Ca	5	7440-70-2

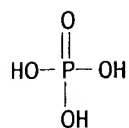
RN 1306-06-5 HCAPLUS
 CN Hydroxylapatite (Ca₅(OH)(PO₄)₃) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
HO	1	14280-30-9
O4P	3	14265-44-2
Ca	5	7440-70-2

RN 1398-61-4 HCAPLUS
 CN Chitin (8CI, 9CI) (CA INDEX NAME)

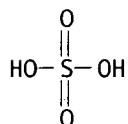
*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

RN 7758-87-4 HCAPLUS
 CN Phosphoric acid, calcium salt (2:3) (8CI, 9CI) (CA INDEX NAME)



3/2 Ca

RN 7778-18-9 HCAPLUS
 CN Sulfuric acid, calcium salt (1:1) (8CI, 9CI) (CA INDEX NAME)



Ca

RN 7789-75-5 HCAPLUS
 CN Calcium fluoride (CaF₂) (9CI) (CA INDEX NAME)

F—Ca—F

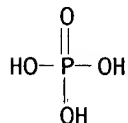
RN 9004-61-9 HCAPLUS
 CN Hyaluronic acid (8CI, 9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

RN 9005-32-7 HCAPLUS
 CN Alginic acid (8CI, 9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

RN 25618-23-9 HCAPLUS
 CN Phosphoric acid, calcium magnesium salt (8CI, 9CI) (CA INDEX NAME)



x Ca

x Mg

RN 65408-67-5 HCAPLUS

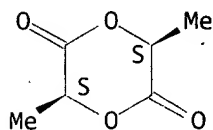
CN 1,4-Dioxane-2,5-dione, 3,6-dimethyl-, (3S,6S)-, polymer with 2-oxepanone (9CI) (CA INDEX NAME)

CM 1

CRN 4511-42-6

CMF C6 H8 O4

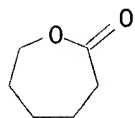
Absolute stereochemistry.



CM 2

CRN 502-44-3

CMF C6 H10 O2



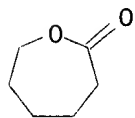
RN 70524-20-8 HCAPLUS

CN 1,4-Dioxane-2,5-dione, 3,6-dimethyl-, polymer with 2-oxepanone (9CI) (CA INDEX NAME)

CM 1

CRN 502-44-3

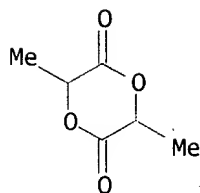
CMF C6 H10 O2



CM 2

CRN 95-96-5

CMF C6 H8 O4

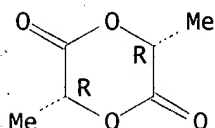


RN 129771-65-9 HCAPLUS
 CN 1,4-Dioxane-2,5-dione, 3,6-dimethyl-, (3R,6R)-, polymer with 2-oxepanone
 (9CI) (CA INDEX NAME)

CM 1

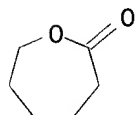
CRN 13076-17-0
 CMF C6 H8 O4

Absolute stereochemistry.



CM 2

CRN 502-44-3
 CMF C6 H10 O2



=> d ibib abs hitstr 4

L76 ANSWER 4 OF 46 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 2002:910321 HCAPLUS

DOCUMENT NUMBER: 138:150846

TITLE: Effects of intermittent hydromechanics on the differentiation and function of bone marrow stromal derived-osteoblasts in porous calcium phosphate ceramics

AUTHOR(S): Tang, Kai; Dang, Gengting; Guo, Zhaoqing
 CORPORATE SOURCE: Department of Orthopedics, Third Hospital, Peking University, Beijing, 100083, Peop. Rep. China

SOURCE: Zhonghua Yixue Zazhi (Beijing, China) (2002), 82(10), 665-668

CODEN: CHTAT; ISSN: 0376-2491

PUBLISHER: Zhonghua Yixue Zazhishe

DOCUMENT TYPE: Journal

LANGUAGE: Chinese

AB The effects of the intermittent hydromech. stimulation on the differentiation and function of the bone marrow stromal derived-osteoblasts in the **porous** Ca₃(PO₄)₂ ceramics were studied. Rat bone marrow stromal derived-osteoblasts were seeded into **porous** Ca₃(PO₄)₂ ceramic **scaffolds** at cell d. of 1 x 10⁶ cells cm⁻³. The cells-ceramics constructs were cultured under rotary condition for 1 h at 4 h interval. After 4, 7, and 14 d cultivation, the osteoblastic phenotype markers (alk. phosphatase (ALP) activity, type I collagen, osteocalcin, osteopontin, osteonectin, and bone sialoprotein mRNA expression levels) were analyzed by biochem. methods and quant. RT-PCR technique. Static cell culture as control. Under rotary cell culture condition, the ALP activity and expression of Type I collagen mRNA were increased remarkably and reached the peak levels at 7 d, and expressions of other four markers mRNA occurred at 4 d and reached the peak levels at 7 d, then down-regulated at 14 d. Under static cell culture as control, the ALP activity and expression of Type I collagen mRNA were increased gradually and reached the peak levels at 14 d, and expressions of other four markers mRNA occurred at 7 d and reached the peak levels at 14 d. The intermittent hydromech. stimulation could promote the bone marrow stromal derived-osteoblasts differentiation and function which cultured in the **porous** Ca₃(PO₄)₂ ceramics in vitro.

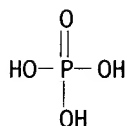
IT 10103-46-5, Calcium phosphate

RL: BUU (Biological use, unclassified); BIOL (Biological study); USES (Uses)

(effects of intermittent hydromechanics on differentiation and function of bone marrow stromal derived-osteoblasts in **porous** calcium phosphate ceramics)

RN 10103-46-5 HCAPLUS

CN Phosphoric acid, calcium salt (8CI, 9CI) (CA INDEX NAME)



⊗x Ca

=> d kwic 4

L76 ANSWER 4 OF 46 HCAPLUS COPYRIGHT 2003 ACS

TI Effects of intermittent hydromechanics on the differentiation and function of bone marrow stromal derived-osteoblasts in **porous** calcium phosphate ceramics

AB The effects of the intermittent hydromech. stimulation on the differentiation and function of the bone marrow stromal derived-osteoblasts in the **porous** Ca₃(PO₄)₂ ceramics were studied. Rat bone marrow stromal derived-osteoblasts were seeded into **porous** Ca₃(PO₄)₂ ceramic **scaffolds** at cell d. of 1 x 10⁶ cells cm⁻³. The cells-ceramics constructs were cultured under rotary condition for 1 h. . . 14 d. The intermittent hydromech. stimulation could promote the bone marrow stromal derived-osteoblasts differentiation and function which cultured in the **porous** Ca₃(PO₄)₂ ceramics in

- vitro.
- ST **collagen** bone marrow osteoblast cell culture differentiation
hydromech stress
- IT Sialoglycoproteins
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(BSP II (bone sialoprotein II); effects of intermittent hydromechanics
on differentiation and function of bone marrow stromal
derived-osteoblasts in **porous** calcium phosphate ceramics)
- IT Animal tissue culture
Cell differentiation
Ceramics
Osteoblast
Stress, mechanical
(effects of intermittent hydromechanics on differentiation and function
of bone marrow stromal derived-osteoblasts in **porous** calcium
phosphate ceramics)
- IT Osteocalcins
Osteonectin
Osteopontin
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(effects of intermittent hydromechanics on differentiation and function
of bone marrow stromal derived-osteoblasts in **porous** calcium
phosphate ceramics)
- IT Bone marrow
(stroma; effects of intermittent hydromechanics on differentiation and
function of bone marrow stromal derived-osteoblasts in **porous**
calcium phosphate ceramics)
- IT **Collagens**, biological studies
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(type I; effects of intermittent hydromechanics on differentiation and
function of bone marrow stromal derived-osteoblasts in **porous**
calcium phosphate ceramics)
- IT 9001-78-9
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(effects of intermittent hydromechanics on differentiation and function
of bone marrow stromal derived-osteoblasts in **porous** calcium
phosphate ceramics)
- IT **10103-46-5**, Calcium phosphate
RL: BUU (Biological use, unclassified); BIOL (Biological study); USES
(Uses)
(effects of intermittent hydromechanics on differentiation and function
of bone marrow stromal derived-osteoblasts in **porous** calcium
phosphate ceramics)

=> d ibib abs hitstr kwic 5

L76 ANSWER 5 OF 46 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 2002:813971 HCAPLUS

DOCUMENT NUMBER: 137:316131

TITLE: Engineered regenerative biostructures for implantation
into a human body as a bone substitute

INVENTOR(S): Beam, Heather Ann; Chesmel, Kathleen D.; Bradbury,
Thomas J.; Gaylo, Christopher M.; Litwak, Alfred
Anthony; Liu, Qing; Materna, Peter Albert; Monkhouse,
Donald; Patterson, Jennifer; Pryor, Timothy J.; Saini,
Sunil; Surprenant, Henry Leon; Wang, Chen-Chau; West,
Thomas George; Yoo, Jaedeok

PATENT ASSIGNEE(S): Therics, Inc., USA

SOURCE: PCT Int. Appl., 173 pp.

DOCUMENT TYPE: CODEN: PIXXD2
 LANGUAGE: Patent
 FAMILY ACC. NUM. COUNT: 1 English
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2002083194	A1	20021024	WO 2002-US11515	20020412

W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM

RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG

PRIORITY APPLN. INFO.: US 2001-283564P P 20010412

AB An engineered regenerative biostructure (erb) for implantation into a human body as a bone substitute, which includes an internal microstructure, mesostructure and/or macrostructure to provide improved bone in-growth, and methods for making the erb. Under one aspect of the invention, the biostructure has resorbable and nonresorbable regions. Under another aspect of the invention, the biostructure is constructed of hydroxyapatite, tricalcium phosphate and/or demineralized bone. Under yet another aspect of the invention, the porous biostructure is partially or fully infused with a resorbable, nonresorbable or dissolvable material.

IT 1306-06-5, Hydroxyapatite 7758-87-4, Tricalcium phosphate 10103-46-5, Calcium phosphate

RL: DEV (Device component use); THU (Therapeutic use); BIOL (Biological study); USES (Uses)

(engineered regenerative biostructures for implantation into a human body as a bone substitute)

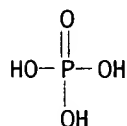
RN 1306-06-5 HCAPLUS

CN Hydroxylapatite (Ca₅(OH)(PO₄)₃) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
HO	1	14280-30-9
O4P	3	14265-44-2
Ca	5	7440-70-2

RN 7758-87-4 HCAPLUS

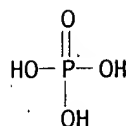
CN Phosphoric acid, calcium salt (2:3) (8CI, 9CI) (CA INDEX NAME)



3/2 Ca

RN 10103-46-5 HCAPLUS

CN Phosphoric acid, calcium salt (8CI, 9CI) (CA INDEX NAME)



x Ca

REFERENCE COUNT: 5 THERE ARE 5 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

- IT Bone
Human
Pearly materials
Pore size
(engineered regenerative biostructures for implantation into a human body as a bone substitute)
- IT Collagens, biological studies
Fibrins
Polyesters, biological studies
RL: DEV (Device component use); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(engineered regenerative biostructures for implantation into a human body as a bone substitute)
- IT 1306-06-5, Hydroxyapatite 7758-87-4, Tricalcium phosphate 7782-42-5, Graphite, biological studies 9011-14-7, Pmma 10103-46-5, Calcium phosphate 13397-26-7, Calcite, biological studies 14791-73-2, Aragonite 26161-42-2 26811-96-1, Poly(L-lactic acid) 34346-01-5, Glycolic acid-lactic acid copolymer
RL: DEV (Device component use); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(engineered regenerative biostructures for implantation into a human body as a bone substitute)

=> d ibib abs hitstr kwic 6-46

L76 ANSWER 6 OF 46 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 2002:716869 HCAPLUS

DOCUMENT NUMBER: 137:237804

TITLE: Implantable biodegradable devices containing fiber matrix for musculoskeletal repair or regeneration

INVENTOR(S): Brown, Kelly R.; Chun, Iksoo; Hammer, Joseph J.; Janas, Victor F.; Mandanas, Jennifer; Melican, Mora C.; Rezania, Alireza; Zimmerman, Mark C.

PATENT ASSIGNEE(S): USA,

SOURCE: U.S. Pat. Appl. Publ., 20 pp., Cont.-in-part of U.S. Ser. No. 745,783.

CODEN: USXXCO

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 2

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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US 2002131989	A1	20020919	US 2001-20021	20011207
US 2002119179	A1	20020829	US 2000-745783	20001222
WO 2002051463	A2	20020704	WO 2001-US49017	20011219
WO 2002051463	A3	20030130		

W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PH, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM

RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG

PRIORITY APPLN. INFO.:

US 2000-745783	A2	20001222
US 2001-20021	A	20011207

AB An implantable biodegradable device is disclosed contg. a fibrous matrix, the fibrous matrix being constructed from fibers A and fibers B, wherein fibers A biodegrade faster than fibers B, fibers A and fibers B are present in relative amts. and are organized such that the fibrous matrix is provided with properties useful in repair and/or regeneration of mammalian tissue. For example, three-dimensional nonwoven fibrous matrixes, or mats, were prepd. using fibers of the PGA/PLA copolymer (90:10) obtained by melt extrusion or conventional means. A no. of wet lay nonwoven matrixes were then prepd. utilizing predetd. fiber selection. Processing aids used included Nalco 625 liq. polymer, Value M-20 and Berchem 4283. Once the fibers were uniformly dispersed within the water the mixt. was drained through a screen to allow water to pass there through and to trap the fibers on the screen. After the water drained through the screen, the mat of fibers was removed. The mat was then dried on both sides, rinsed overnight in water followed by another overnight incubation in ethanol to remove any residual chems. or processing aids used during the manufg. process.

IT 24980-41-4, Polycaprolactone 25248-42-4,
Polycaprolactone 26009-03-0, Poly(glycolic acid)
26124-68-5, Poly(glycolic acid)

RL: DEV (Device component use); THU (Therapeutic use); BIOL (Biological study); USES (Uses)

(binder; implantable biodegradable devices contg. fibers for musculoskeletal repair or regeneration)

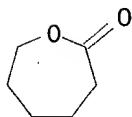
RN 24980-41-4 HCAPLUS

CN 2-Oxepanone, homopolymer (9CI) (CA INDEX NAME)

CM 1

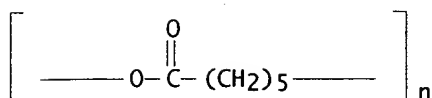
CRN 502-44-3

CMF C6 H10 O2



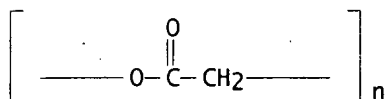
RN 25248-42-4 HCAPLUS

CN Poly[oxy(1-oxo-1,6-hexanediyl)] (9CI) (CA INDEX NAME)



RN 26009-03-0 HCAPLUS

CN Poly[oxy(1-oxo-1,2-ethanediyl)] (9CI) (CA INDEX NAME)



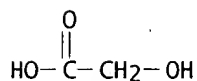
RN 26124-68-5 HCAPLUS

CN Acetic acid, hydroxy-, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 79-14-1

CMF C2 H4 O3



IT 26023-30-3, Poly[oxy(1-methyl-2-oxo-1,2-ethanediyl)]

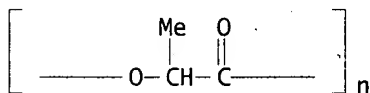
26100-51-6, Poly(lactic acid)

RL: DEV (Device component use); THU (Therapeutic use); BIOL (Biological study); USES (Uses)

(binders; implantable biodegradable devices contg. fibers for musculoskeletal repair or regeneration)

RN 26023-30-3 HCAPLUS

CN Poly[oxy(1-methyl-2-oxo-1,2-ethanediyl)] (8CI, 9CI) (CA INDEX NAME)



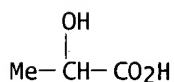
RN 26100-51-6 HCAPLUS

CN Propanoic acid, 2-hydroxy-, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 50-21-5

CMF C3 H6 O3



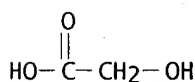
IT **9004-61-9, Hyaluronic acid**
 RL: DEV (Device component use); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
 (coatings; implantable biodegradable devices contg. fibers for musculoskeletal repair or regeneration)
 RN 9004-61-9 HCAPLUS
 CN Hyaluronic acid (8CI, 9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

IT **34346-01-5, Glycolic acid-lactic acid copolymer**
 RL: DEV (Device component use); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
 (fibers; implantable biodegradable devices contg. fibers for musculoskeletal repair or regeneration)
 RN 34346-01-5 HCAPLUS
 CN Propanoic acid, 2-hydroxy-, polymer with hydroxyacetic acid (9CI) (CA INDEX NAME)

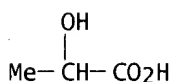
CM 1

CRN 79-14-1
 CMF C2 H4 O3

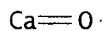


CM 2

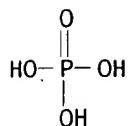
CRN 50-21-5
 CMF C3 H6 O3



IT **1305-78-8, Calcium oxide, biological studies**
 RL: DEV (Device component use); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
 (glass contg.; implantable biodegradable devices contg. fibers for musculoskeletal repair or regeneration)
 RN 1305-78-8 HCAPLUS
 CN Calcium oxide (CaO) (9CI) (CA INDEX NAME)



IT **10103-46-5, Calcium phosphate**
 RL: DEV (Device component use); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
 (silicate-contg., glass; implantable biodegradable devices contg. fibers for musculoskeletal repair or regeneration)
 RN 10103-46-5 HCAPLUS
 CN Phosphoric acid, calcium salt (8CI, 9CI) (CA-INDEX NAME)



⊗x Ca

- IT Platelet-derived **growth factors**
 RL: DEV (Device component use); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
 (AA, coatings; implantable biodegradable devices contg. fibers for musculoskeletal repair or regeneration)
- IT Platelet-derived **growth factors**
 RL: DEV (Device component use); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
 (BB, coatings; implantable biodegradable devices contg. fibers for musculoskeletal repair or regeneration)
- IT **Polyesters, biological studies**
 RL: DEV (Device component use); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
 (caprolactone-based, binders; implantable biodegradable devices contg. fibers for musculoskeletal repair or regeneration)
- IT Actins
 Antibodies
 Bone morphogenetic proteins
 Collagens, biological studies
 Elastins
 Fibrillins
 Fibronectins
 Glycosaminoglycans, biological studies
 Laminins
 Myosins
 Pleiotrophins
 Transforming **growth factors**
 Vitronectin
 RL: DEV (Device component use); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
 (coatings; implantable biodegradable devices contg. fibers for musculoskeletal repair or regeneration)
- IT **Polycarbonates, biological studies**
 RL: DEV (Device component use); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
 (fiber, imino-; implantable biodegradable devices contg. fibers for musculoskeletal repair or regeneration)
- IT **Biopolymers**
 Polyanhydrides
 RL: DEV (Device component use); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
 (fibers; implantable biodegradable devices contg. fibers for musculoskeletal repair or regeneration)
- IT Bone
 Muscle
 Pore size
 Regeneration, animal
 Yarns

- (implantable biodegradable devices contg. fibers for musculoskeletal repair or regeneration)
- IT **Prosthetic materials and Prosthetics**
(implants; implantable biodegradable devices contg. fibers for musculoskeletal repair or regeneration)
- IT **Polyesters, biological studies**
RL: DEV (Device component use); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(lactic acid-based, binders; implantable biodegradable devices contg. fibers for musculoskeletal repair or regeneration)
- IT **24980-41-4, Polycaprolactone 25248-42-4, Polycaprolactone 26009-03-0, Poly(glycolic acid) 26124-68-5, Poly(glycolic acid) 31621-87-1, Polydioxanone**
RL: DEV (Device component use); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(binder; implantable biodegradable devices contg. fibers for musculoskeletal repair or regeneration)
- IT **26023-30-3, Poly[oxy(1-methyl-2-oxo-1,2-ethanediyl)] 26100-51-6, Poly(lactic acid)**
RL: DEV (Device component use); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(binders; implantable biodegradable devices contg. fibers for musculoskeletal repair or regeneration)
- IT **9004-61-9, Hyaluronic acid 106096-92-8 106096-93-9, Fibroblast growth factor 2 116243-73-3, Endothelin 127464-60-2, Vascular endothelial growth factor**
RL: DEV (Device component use); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(coatings; implantable biodegradable devices contg. fibers for musculoskeletal repair or regeneration)
- IT **34346-01-5, Glycolic acid-lactic acid copolymer**
RL: DEV (Device component use); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(fibers; implantable biodegradable devices contg. fibers for musculoskeletal repair or regeneration)
- IT **1305-78-8, Calcium oxide, biological studies 1314-56-3, Phosphorus pentoxide, biological studies**
RL: DEV (Device component use); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(glass contg.; implantable biodegradable devices contg. fibers for musculoskeletal repair or regeneration)
- IT **10103-46-5, Calcium phosphate**
RL: DEV (Device component use); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(silicate-contg., glass; implantable biodegradable devices contg. fibers for musculoskeletal repair or regeneration)

L76 ANSWER 7 OF 46 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 2002:711241 HCAPLUS

DOCUMENT NUMBER: 137:237796

TITLE: Viscous suspension spinning process for producing resorbable ceramic fibers and scaffolds

INVENTOR(S): Janas, Victor F.; Tenhuisen, Kevor S.

PATENT ASSIGNEE(S): Ethicon, Inc., USA

SOURCE: U.S., 7 pp.

CODEN: USXXAM

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 6451059	B1	20020917	US 1999-439656	19991112

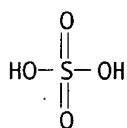
PRIORITY APPLN. INFO.: US 1999-439656 19991112

AB The present invention provides a hard tissue **scaffold** comprising a resorbable ceramic. The **scaffold** is formed by first creating unfired (green) bioresorbable ceramic fibers via the viscous suspension spinning process (VSSP). Then, using common textile techniques, a structure in which the size and distribution of interconnected **pores** are controlled, is created. Heat treating the structure to remove the org. **phase** and sintering the ceramic yields a hard tissue **scaffold**. For example, particles of ceramic tricalcium phosphate were milled in water contg. a sodium silicate surfactant to create a dispersion. The dispersion was added to a viscose at the ratio of ceramic particles to cellulose of 70:30 by wt. The mixt. was pumped through a 100-hole, 90-.mu. spinneret into a soln. of sulfuric acid which, after subsequent washes in mild acid solns. and water, yielded a tow of cellulose fibers highly filled with ceramic phosphate and sulfate particles. Approx. 1 g of yarn was placed on platinum foil, which in turn was put onto an aluminum setter plate, and placed in a high temp. furnace to remove the cellulose and allow for sintering of the ceramic particles. The resulting ceramic fibers were a multiphase blend of calcium sulfates, sodium sulfates, calcium phosphates, and sodium phosphates. By wt., the fibers were 52% SO₄, 37% CaO, 4.5% P₂O₅, 3.6% Na₂O, and approx. 3% of trace compds. such as SiO₂ and ZnO.

IT 7778-18-9, Calcium sulfate
 RL: FMU (Formation, unclassified); THU (Therapeutic use); BIOL (Biological study); FORM (Formation, nonpreparative); USES (Uses)
 (ceramics contg.; viscous suspension spinning process for producing resorbable ceramic fibers and **scaffolds**)

RN 7778-18-9 HCAPLUS

CN Sulfuric acid, calcium salt (1:1) (8CI, 9CI) (CA INDEX NAME)



Ca

IT 1306-06-5, Hydroxyapatite 7758-87-4, Tricalcium phosphate 10103-46-5, Calcium phosphate 13767-12-9, Tetracalcium phosphate

RL: PEP (Physical, engineering or chemical process); PYP (Physical process); THU (Therapeutic use); BIOL (Biological study); PROC (Process); USES (Uses)
 (viscous suspension spinning process for producing resorbable ceramic fibers and **scaffolds**)

RN 1306-06-5 HCAPLUS

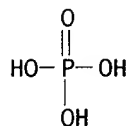
CN Hydroxylapatite (Ca₅(OH)(PO₄)₃) (9CI) (CA INDEX NAME)

Component	Ratio	Component	Registry Number
=====+=====+=====			

HO		1		14280-30-9
O4P		3		14265-44-2
Ca		5		7440-70-2

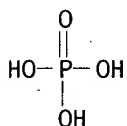
RN 7758-87-4 HCAPLUS

CN Phosphoric acid, calcium salt (2:3) (8CI, 9CI) (CA INDEX NAME)

 $\frac{3}{2}$ Ca

RN 10103-46-5 HCAPLUS

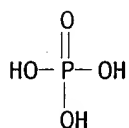
CN Phosphoric acid, calcium salt (8CI, 9CI) (CA INDEX NAME)



x Ca

RN 13767-12-9 HCAPLUS

CN Phosphoric acid, calcium salt (3:4) (8CI, 9CI) (CA INDEX NAME)

 $\frac{4}{3}$ Ca

REFERENCE COUNT: 29 THERE ARE 29 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

TI Viscous suspension spinning process for producing resorbable ceramic fibers and **scaffolds**

CC 63-7 (Pharmaceuticals)

Section cross-reference(s): 57

AB The present invention provides a hard tissue **scaffold** comprising a resorbable ceramic. The **scaffold** is formed by first creating unfired (green) bioresorbable ceramic fibers via the viscous suspension spinning process (VSSP). Then, using common textile techniques, a structure in which the size and distribution of interconnected **pores** are controlled, is created. Heat treating the structure to remove the org. phase and sintering the ceramic yields a hard tissue **scaffold**. For example, particles of ceramic tricalcium

phosphate were milled in water contg. a sodium silicate surfactant to create a dispersion. The dispersion was added to a viscose at the ratio of ceramic particles to cellulose of 70:30 by wt. The mixt. was pumped through a 100-hole, 90- μ . spinneret into a soln. of sulfuric acid which, after subsequent washes in mild acid solns. and water, yielded a tow of cellulose fibers highly filled with ceramic phosphate and sulfate particles. Approx. 1 g of yarn was placed on platinum foil, which in turn was put onto an aluminum setter plate, and placed in a high temp. furnace to remove the cellulose and allow for sintering of the ceramic particles. The resulting ceramic fibers were a multiphasic blend of calcium sulfates, sodium sulfates, calcium phosphates, and sodium phosphates. By wt., the fibers were 52% SO_4 , 37% CaO , 4.5% P_2O_5 , 3.6% Na_2O , and approx. 3% of trace compds. such as SiO_2 and ZnO .

- IT Bone
(artificial; viscous suspension spinning process for producing resorbable ceramic fibers and **scaffolds** for bone grafts)
- IT Polymers, uses
RL: MOA (Modifier or additive use); USES (Uses)
(biocompatible; viscous suspension spinning process for producing resorbable ceramic fibers and **scaffolds**)
- IT **Ceramics**
(blends; viscous suspension spinning process for producing resorbable ceramic fibers and **scaffolds**)
- IT Glass, biological studies
RL: PEP (Physical, engineering or chemical process); PYP (Physical process); THU (Therapeutic use); BIOL (Biological study); PROC (Process); USES (Uses)
(blends; viscous suspension spinning process for producing resorbable ceramic fibers and **scaffolds**)
- IT Fibers
RL: MOA (Modifier or additive use); USES (Uses)
(cellulosic; viscous suspension spinning process for producing resorbable ceramic fibers and **scaffolds**)
- IT Prosthetic materials and Prosthetics
(ceramic, implants; viscous suspension spinning process for producing resorbable ceramic fibers and **scaffolds**)
- IT Pore size
Pore size distribution
(controlled; viscous suspension spinning process for producing resorbable ceramic fibers and **scaffolds**)
- IT **Ceramics**
(fibers; viscous suspension spinning process for producing resorbable ceramic fibers and **scaffolds**)
- IT **Ceramics**
(prosthetic implants; viscous suspension spinning process for producing resorbable ceramic fibers and **scaffolds**)
- IT Heat treatment
Textiles
Viscose
(viscous suspension spinning process for producing resorbable ceramic fibers and **scaffolds**)
- IT **Polyesters, uses**
RL: MOA (Modifier or additive use); USES (Uses)
(viscous suspension spinning process for producing resorbable ceramic fibers and **scaffolds**)
- IT Bone formation
(viscous suspension spinning process for producing resorbable ceramic fibers and **scaffolds** for bone growth)
- IT 7632-05-5, Sodium phosphate 7757-82-6, Sodium sulfate, biological studies 7778-18-9, Calcium sulfate

RL: FMU (Formation, unclassified); THU (Therapeutic use); BIOL (Biological study); FORM (Formation, nonpreparative); USES (Uses)
(ceramics contg.; viscous suspension spinning process for producing resorbable ceramic fibers and scaffolds)

IT 9002-89-5, Polyvinyl alcohol 9004-34-6D, Cellulose, derivs.

RL: MOA (Modifier or additive use); USES (Uses)
(viscous suspension spinning process for producing resorbable ceramic fibers and scaffolds)

IT 1306-06-5, Hydroxyapatite 7758-87-4, Tricalcium phosphate 10103-46-5, Calcium phosphate 13767-12-9, Tetracalcium phosphate

RL: PEP (Physical, engineering or chemical process); PYP (Physical process); THU (Therapeutic use); BIOL (Biological study); PROC (Process); USES (Uses)
(viscous suspension spinning process for producing resorbable ceramic fibers and scaffolds)

L76 ANSWER 8 OF 46 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 2002:521417 HCAPLUS

DOCUMENT NUMBER: 137:83712

TITLE: Polymer compositions for bone implants

INVENTOR(S): Vaidyanathan, K. Ranji; Walish, Joseph; Calvert, Paul D.

PATENT ASSIGNEE(S): Advanced Ceramics Research, Inc., USA

SOURCE: PCT Int. Appl., 32 pp.

CODEN: PIXXD2

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2002053105	A2	20020711	WO 2002-US51	20020102
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, UZ, VN, YU, ZA, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				

PRIORITY APPLN. INFO.: US 2001-259348P P 20010102

US 2001-337577P P 20011105

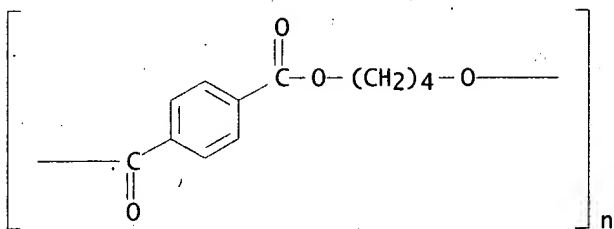
AB The present invention relates to biomedical implants for bone substitution and replacement applications. The implant includes a strong, porous polymeric or thermoplastic compns. and growth-enhancing compns. Poly-2-ethyl-2-oxazoline (PEOx) was mixed with PBT and calcium phosphate. The blending was performed at 215.degree.. The compn. contained poly(2-ethyl-2-oxazoline) 36, PBT 46, calcium phosphate 10, and plasticizer 8%. Feed rods of the blend were made and extruded with the extrusion free from fabrication process.

IT 24968-12-5, PBT 26062-94-2, 1,4-Butanediol-terephthalic acid copolymer

RL: DEV (Device component use); PEP (Physical, engineering or chemical process); POF (Polymer in formulation); PYP (Physical process); THU (Therapeutic use); BIOL (Biological study); PROC (Process); USES (Uses)
(polymer compns. for bone implants)

RN 24968-12-5 HCAPLUS

CN Poly(oxy-1,4-butanediylloxycarbonyl-1,4-phenylenecarbonyl) (9CI) (CA INDEX NAME)



RN 26062-94-2 HCAPLUS

CN 1,4-Benzenedicarboxylic acid, polymer with 1,4-butanediol (9CI) (CA INDEX NAME)

CM 1

CRN 110-63-4

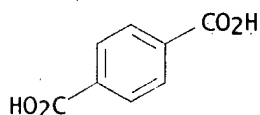
CMF C4 H10 O2

HO-(CH₂)₄-OH

CM 2

CRN 100-21-0

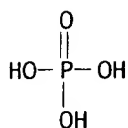
CMF C8 H6 O4



IT 7758-87-4, Tricalcium phosphate 24980-41-4, Polycaprolactone 25038-59-9, PET, biological studies. 25248-42-4, Polycaprolactone 26009-03-0, Poly(Glycolic acid) 26023-30-3, Poly[oxy(1-methyl-2-oxo-1,2-ethanediyl)] 26100-51-6, Poly(lactic acid) 26124-68-5, Poly(Glycolic acid) 34346-01-5, Glycolic acid-lactic acid copolymer
 RL: DEV (Device component use); PEP (Physical, engineering or chemical process); PYP (Physical process); THU (Therapeutic use); BIOL (Biological study); PROC (Process); USES (Uses)
 (polymer compns. for bone implants)

RN 7758-87-4 HCAPLUS

CN Phosphoric acid, calcium salt (2:3) (8CI, 9CI) (CA INDEX NAME)

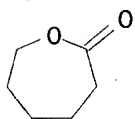


3/2 Ca

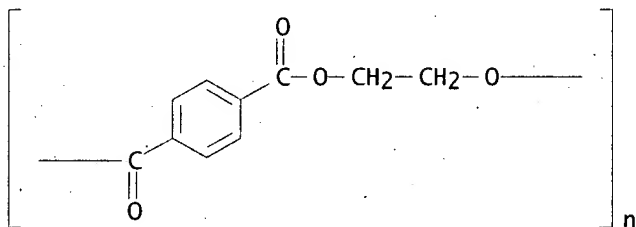
RN 24980-41-4 HCAPLUS
 CN 2-Oxepanone, homopolymer (9CI) (CA INDEX NAME)

CM 1

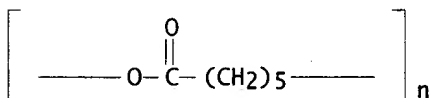
CRN 502-44-3
 CMF C6 H10 O2



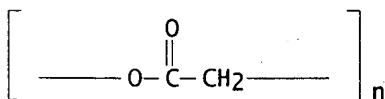
RN 25038-59-9 HCAPLUS
 CN Poly(oxy-1,2-ethanediylloxycarbonyl-1,4-phenylenecarbonyl) (9CI) (CA INDEX NAME)



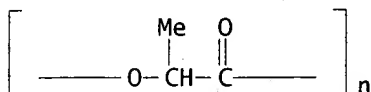
RN 25248-42-4 HCAPLUS
 CN Poly[oxy(1-oxo-1,6-hexanediyl)] (9CI) (CA INDEX NAME)



RN 26009-03-0 HCAPLUS
 CN Poly[oxy(1-oxo-1,2-ethanediyl)] (9CI) (CA INDEX NAME)



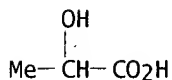
RN 26023-30-3 HCAPLUS
 CN Poly[oxy(1-methyl-2-oxo-1,2-ethanediyl)] (8CI, 9CI) (CA INDEX NAME)



RN 26100-51-6 HCAPLUS
 CN Propanoic acid, 2-hydroxy-, homopolymer (9CI) (CA INDEX NAME)

CM 1

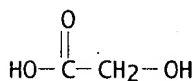
CRN 50-21-5
 CMF C3 H6 O3



RN 26124-68-5 HCAPLUS
 CN Acetic acid, hydroxy-, homopolymer (9CI) (CA INDEX NAME)

CM 1

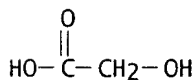
CRN 79-14-1
 CMF C2 H4 O3



RN 34346-01-5 HCAPLUS
 CN Propanoic acid, 2-hydroxy-, polymer with hydroxyacetic acid (9CI) (CA INDEX NAME)

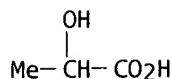
CM 1

CRN 79-14-1
 CMF C2 H4 O3



CM 2

CRN 50-21-5
 CMF C3 H6 O3



- IT **Polyesters, biological studies**
 RL: DEV (Device component use); PEP (Physical, engineering or chemical process); PYP (Physical process); THU (Therapeutic use); BIOL (Biological study); PROC (Process); USES (Uses)
 (aliph., linear; polymer compns. for bone implants)
- IT **Polyesters, biological studies**
 RL: DEV (Device component use); PEP (Physical, engineering or chemical process); PYP (Physical process); THU (Therapeutic use); BIOL (Biological study); PROC (Process); USES (Uses)
 (caprolactone-based; polymer compns. for bone implants)
- IT **Prosthetic materials and Prosthetics**
 (ceramic, implants; polymer compns. for bone implants)
- IT **Polyesters, biological studies**
 RL: DEV (Device component use); PEP (Physical, engineering or chemical process); PYP (Physical process); THU (Therapeutic use); BIOL (Biological study); PROC (Process); USES (Uses)
 (hydroxycarboxylic acid-based; polymer compns. for bone implants)
- IT **Prosthetic materials and Prosthetics**
 (implants; polymer compns. for bone implants)
- IT **Polyesters, biological studies**
 RL: DEV (Device component use); PEP (Physical, engineering or chemical process); POF (Polymer in formulation); PYP (Physical process); THU (Therapeutic use); BIOL (Biological study); PROC (Process); USES (Uses)
 (lactic acid-based; polymer compns. for bone implants)
- IT Bone formation
 Extrusion of plastics and rubbers
 Human
 Pore size distribution
 Porosity
 Viscosity
 (polymer compns. for bone implants)
- IT **Polyesters, biological studies**
 Polyesters, biological studies
 Polymer blends
 Polymers, biological studies
 RL: DEV (Device component use); PEP (Physical, engineering or chemical process); PYP (Physical process); THU (Therapeutic use); BIOL (Biological study); PROC (Process); USES (Uses)
 (polymer compns. for bone implants)
- IT **Transforming growth factors**
 RL: THU (Therapeutic use); BIOL (Biological study); USES (Uses)
 (polymer compns. for bone implants)
- IT **Polyesters, biological studies**
 RL: DEV (Device component use); PEP (Physical, engineering or chemical process); POF (Polymer in formulation); PYP (Physical process); THU (Therapeutic use); BIOL (Biological study); PROC (Process); USES (Uses)
 (polyoxyphenylene-; polymer compns. for bone implants)
- IT **Ceramics**
 (prosthetic implants; polymer compns. for bone implants)
- IT **24968-12-5, PBT 25805-17-8, Poly(2-ethyl-2-oxazoline)**
26062-94-2, 1,4-Butanediol-terephthalic acid copolymer
 RL: DEV (Device component use); PEP (Physical, engineering or chemical process); POF (Polymer in formulation); PYP (Physical process); THU (Therapeutic use); BIOL (Biological study); PROC (Process); USES (Uses)
 (polymer compns. for bone implants)

IT 7758-87-4, Tricalcium phosphate 9011-14-7, PMMA
 24980-41-4, Polycaprolactone 25038-59-9, PET, biological
 studies 25248-42-4, Polycaprolactone 26009-03-0,
 Poly(Glycolic acid) 26023-30-3, Poly[oxy(1-methyl-2-oxo-1,2-
 ethanediyl)] 26100-51-6, Poly(lactic acid) 26124-68-5,
 Poly(Glycolic acid) 31694-16-3, PEEK 34346-01-5, Glycolic
 acid-lactic acid copolymer
 RL: DEV (Device component use); PEP (Physical, engineering or chemical
 process); PYP (Physical process); THU (Therapeutic use); BIOL (Biological
 study); PROC (Process); USES (Uses)
 (polymer compns. for bone implants)

L76 ANSWER 9 OF 46 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 2002:385129 HCAPLUS

TITLE: Preparation and histological evaluation of biomimetic
 three-dimensional hydroxyapatite/chitosan-gelatin
 network composite **scaffolds**

AUTHOR(S): Zhao, Feng; Yin, Yuji; Lu, William W.; Leong, J.
 Chiyan; Zhang, Wenyi; Zhang, Jingyu; Zhang, Mingfang;
 Yao, Kangde

CORPORATE SOURCE: Tianjin University, Research Institute of Polymeric
 Materials, Tianjin, 300072, Peop. Rep. China

SOURCE: Biomaterials (2002), 23(15), 3227-3234

CODEN: BIMADU; ISSN: 0142-9612

PUBLISHER: Elsevier Science Ltd.

DOCUMENT TYPE: Journal

LANGUAGE: English

AB A novel biodegradable hydroxyapatite/chitosan-gelatin network (HA/CS-Gel)
 composite of similar compn. to that of normal human bone was prepd. as a
 three-dimensional biomimetic **scaffold** by **phase sepn.**
 method for bone tissue engineering. Changing the solid content and the
 compositional variables of the original mixts. allowed control of the
porosities and densities of the **scaffolds**. The HA
 granules were dispersed uniformly in the org. network with intimate
 interface contact via pulverizing and ultrasonically treating com.
 available HA particles. **Scaffolds** of 90.6% **porosity**
 were used to examine the proliferation and functions of the cells in this
 three-dimensional microenvironment by culturing neonatal rat caldaria
 osteoblasts. Histol. and immunohistochem. staining and SEM observation
 indicated that the osteoblasts attached to and proliferated on the
scaffolds. Extracellular matrixes including collagen I and
 proteoglycan-like substrate were synthesized, while osteoid and bone-like
 tissue formed during the culture period. Furthermore, the cell/
scaffold constructs had good biomineralization effect after 3 wk
 in culture.

IT 1306-06-5, Hydroxyapatite

RL: PRP (Properties); THU (Therapeutic use); BIOL (Biological study); USES
 (Uses)

(biomimetic three-dimensional hydroxyapatite/chitosan-gelatin network
 composite **scaffolds**)

RN 1306-06-5 HCAPLUS

CN Hydroxylapatite (Ca₅(OH)(PO₄)₃) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
HO	1	14280-30-9
O4P	3	14265-44-2
Ca	5	7440-70-2

REFERENCE COUNT: 34 THERE ARE 34 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

- TI Preparation and histological evaluation of biomimetic three-dimensional hydroxyapatite/chitosan-gelatin network composite **scaffolds**
- CC 63-7 (Pharmaceuticals)
- AB A novel biodegradable hydroxyapatite/chitosan-gelatin network (HA/CS-Gel) composite of similar compn. to that of normal human bone was prepd. as a three-dimensional biomimetic **scaffold** by **phase sepn.** method for bone tissue engineering. Changing the solid content and the compositional variables of the original mixts. allowed control of the **porosities** and densities of the **scaffolds**. The HA granules were dispersed uniformly in the org. network with intimate interface contact via pulverizing and ultrasonically treating com. available HA particles. **Scaffolds** of 90.6% **porosity** were used to examine the proliferation and functions of the cells in this three-dimensional microenvironment by culturing neonatal rat caldaria osteoblasts. Histol. and immunohistochem. staining and SEM observation indicated that the osteoblasts attached to and proliferated on the **scaffolds**. Extracellular matrixes including collagen I and proteoglycan-like substrate were synthesized, while osteoid and bone-like tissue formed during the culture period. Furthermore, the cell/**scaffold** constructs had good biomineralization effect after 3 wk in culture.
- IT Bone
(artificial; biomimetic three-dimensional hydroxyapatite/chitosan-gelatin network composite **scaffolds**)
- IT Animal tissue culture
Biomineralization
Cell proliferation
Human
Osteoblast
Porosity
(biomimetic three-dimensional hydroxyapatite/chitosan-gelatin network composite **scaffolds**)
- IT Proteoglycans
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(biomimetic three-dimensional hydroxyapatite/chitosan-gelatin network composite **scaffolds**)
- IT Gelatins
RL: PRP (Properties); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(biomimetic three-dimensional hydroxyapatite/chitosan-gelatin network composite **scaffolds**)
- IT Prosthetic materials and Prosthetics
(composites; biomimetic three-dimensional hydroxyapatite/chitosan-gelatin network composite **scaffolds**)
- IT Bone
(osteoid; biomimetic three-dimensional hydroxyapatite/chitosan-gelatin network composite **scaffolds**)
- IT **Collagens**
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(type I; biomimetic three-dimensional hydroxyapatite/chitosan-gelatin network composite **scaffolds**)
- IT 1306-06-5, Hydroxyapatite 9012-76-4, Chitosan
RL: PRP (Properties); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(biomimetic three-dimensional hydroxyapatite/chitosan-gelatin network composite **scaffolds**)

L76 ANSWER 10 OF 46 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 2002:340922 HCAPLUS
 DOCUMENT NUMBER: 138:142378
 TITLE: Plasma-sprayed calcium phosphate particles with high bioactivity and their use in bioactive scaffolds
 AUTHOR(S): Weng, Jie; Wang, Min; Chen, Jiyong
 CORPORATE SOURCE: Nanyang Technological University, School of Mechanical and Production Engineering, Singapore, 639798, Singapore
 SOURCE: Biomaterials (2002), 23(13), 2623-2629
 CODEN: BIMADU; ISSN: 0142-9612
 PUBLISHER: Elsevier Science Ltd.
 DOCUMENT TYPE: Journal
 LANGUAGE: English

AB Highly cryst. feedstock hydroxyapatite (HA) particles with irregular shapes were spheroidized by plasma spraying them onto the surface of ice blocks or into water. The spherical Ca-P particles thus produced contained various amts. of the amorphous phase which were controlled by the stand-off distance between the spray nozzle and the surface of ice blocks or water. The smooth surface morphol. without cracks of spherical Ca-P particles indicated that there were very low thermal stresses in these particles. Plasma-sprayed Ca-P particles were highly bioactive due to their amorphous component and hence quickly induced the formation of bone-like apatite on their surfaces after they were immersed in an acellular simulated body fluid at 36.5:degree.. Bone-like apatite nucleated on dissolved surface (due to the amorphous phase) of individual Ca-P particles and grew to coalesce between neighboring Ca-P particles thus forming an integrated apatite plate. Bioactive and biodegradable composite scaffolds were produced by incorporating plasma-sprayed Ca-P particles into a degradable polymer. In vitro expts. showed that plasma-sprayed Ca-P particles enhanced the formation of bone-like apatite on the pore surface of Ca-P/PLLA composite scaffolds.

IT 1306-06-5, Hydroxyapatite
 RL: PEP (Physical, engineering or chemical process); PRP (Properties); PYP (Physical process); THU (Therapeutic use); BIOL (Biological study); PROC (Process); USES (Uses)
 (plasma-sprayed calcium phosphate particles with high bioactivity and their use in bioactive scaffolds)

RN 1306-06-5 HCAPLUS

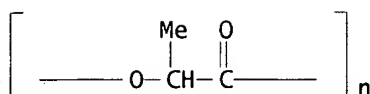
CN Hydroxylapatite (Ca₅(OH)(PO₄)₃) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
HO	1	14280-30-9
O4P	3	14265-44-2
Ca	5	7440-70-2

IT 26161-42-2 26811-96-1, Poly(L-lactic acid)
 RL: PRP (Properties); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
 (plasma-sprayed calcium phosphate particles with high bioactivity and their use in bioactive scaffolds)

RN 26161-42-2 HCAPLUS

CN Poly[oxy[(1S)-1-methyl-2-oxo-1,2-ethanediyl]] (9CI) (CA INDEX NAME)



RN 26811-96-1 HCAPLUS

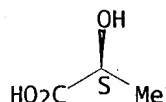
CN Propanoic acid, 2-hydroxy-, (2S)-, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 79-33-4

CMF C3 H6 O3

Absolute stereochemistry. Rotation (+).



REFERENCE COUNT: 15 THERE ARE 15 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

TI Plasma-sprayed calcium phosphate particles with high bioactivity and their use in bioactive **scaffolds**

CC 63-7 (Pharmaceuticals)

AB Highly cryst. feedstock hydroxyapatite (HA) particles with irregular shapes were spheroidized by plasma spraying them onto the surface of ice blocks or into water. The spherical Ca-P particles thus produced contained various amts. of the amorphous **phase** which were controlled by the stand-off distance between the spray nozzle and the surface of ice blocks or water. The smooth surface morphol. without cracks of spherical Ca-P particles indicated that there were very low thermal stresses in these particles. Plasma-sprayed Ca-P particles were highly bioactive due to their amorphous component and hence quickly induced the formation of bone-like apatite on their surfaces after they were immersed in an acellular simulated body fluid at 36.5.degree.. Bone-like apatite nucleated on dissolved surface (due to the amorphous **phase**) of individual Ca-P particles and grew to coalesce between neighboring Ca-P particles thus forming an integrated apatite plate. Bioactive and biodegradable composite **scaffolds** were produced by incorporating plasma-sprayed Ca-P particles into a degradable polymer. In vitro expts. showed that plasma-sprayed Ca-P particles enhanced the formation of bone-like apatite on the **pore** surface of Ca-P/PLLA composite **scaffolds**.

IT Bone
(artificial; plasma-sprayed calcium phosphate particles with high bioactivity and their use in bioactive **scaffolds**)

IT Prosthetic materials and Prosthetics
(composites; plasma-sprayed calcium phosphate particles with high bioactivity and their use in bioactive **scaffolds**)

IT **Polyesters, biological studies**

RL: PRP (Properties); THU (Therapeutic use); BIOL (Biological study); USES (Uses)

(lactic acid-based; plasma-sprayed calcium phosphate particles with high bioactivity and their use in bioactive **scaffolds**)

IT Coating process

(plasma spraying; plasma-sprayed calcium phosphate particles with high bioactivity and their use in bioactive **scaffolds**)

- IT Surface structure
(plasma-sprayed calcium phosphate particles with high bioactivity and their use in bioactive **scaffolds**)
- IT 1306-06-5, Hydroxyapatite
RL: PEP (Physical, engineering or chemical process); PRP (Properties); PYP (Physical process); THU (Therapeutic use); BIOL (Biological study); PROC (Process); USES (Uses)
(plasma-sprayed calcium phosphate particles with high bioactivity and their use in bioactive **scaffolds**)
- IT 26161-42-2 26811-96-1, Poly(L-lactic acid)
RL: PRP (Properties); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(plasma-sprayed calcium phosphate particles with high bioactivity and their use in bioactive **scaffolds**)

L76 ANSWER 11 OF 46 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 2002:335323 HCAPLUS

DOCUMENT NUMBER: 138:193063

TITLE: Fabrication of **porous scaffolds**

for bone tissue engineering via low-temperature deposition

AUTHOR(S): Xiong, Zhuo; Yan, Yongnian; Wang, Shenguo; Zhang, Renji; Zhang, Chao

CORPORATE SOURCE: Department of Mechanical Engineering, Tsinghua University, Beijing, 100084, Peop. Rep. China

SOURCE: Scripta Materialia (2002), 46(11), 771-776

CODEN: SCMAF7; ISSN: 1359-6462

PUBLISHER: Elsevier Science Ltd.

DOCUMENT TYPE: Journal

LANGUAGE: English

AB A new process of low-temp. deposition manufg. (LDM) based on the **layer-by-layer** manufg. method of solid freeform fabrication is proposed to fabricate poly(L-lactic acid)/(tricalcium phosphate) composite **scaffolds** for bone tissue engineering. The LDM system and the manufg. process are analyzed. The manufd. **scaffolds** are evaluated as bone regeneration **scaffolds** following implantation of the **scaffold** loaded with bone morphogenic protein.

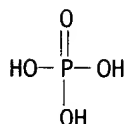
IT 7758-87-4, Tricalcium phosphate 26161-42-2
26811-96-1, Poly(L-lactic acid)

RL: PEP (Physical, engineering or chemical process); PRP (Properties); PYP (Physical process); THU (Therapeutic use); BIOL (Biological study); PROC (Process); USES (Uses)

(fabrication of **porous scaffolds** for bone tissue engineering via low-temp. deposition)

RN 7758-87-4 HCAPLUS

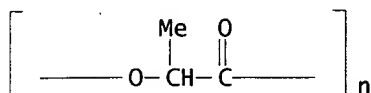
CN Phosphoric acid, calcium salt (2:3) (8CI, 9CI) (CA INDEX NAME)



●3/2 Ca

RN 26161-42-2 HCAPLUS

CN Poly[oxy[(1S)-1-methyl-2-oxo-1,2-ethanediyl]] (9CI) (CA INDEX NAME)



RN 26811-96-1 HCAPLUS

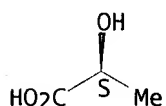
CN Propanoic acid, 2-hydroxy-, (2S)-, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 79-33-4

CMF C3 H6 O3

Absolute stereochemistry. Rotation (+).



REFERENCE COUNT: 16 THERE ARE 16 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

TI Fabrication of **porous scaffolds** for bone tissue engineering via low-temperature deposition

CC 63-7 (Pharmaceuticals)

AB A new process of low-temp. deposition manufg. (LDM) based on the **layer-by-layer** manufg. method of solid freeform fabrication is proposed to fabricate poly(L-lactic acid)/(tricalcium phosphate) composite **scaffolds** for bone tissue engineering. The LDM system and the manufg. process are analyzed. The manufd. **scaffolds** are evaluated as bone regeneration **scaffolds** following implantation of the **scaffold** loaded with bone morphogenic protein.

ST polylactate tricalcium phosphate composite bone **scaffold**

IT Prosthetic materials and Prosthetics

(composites; fabrication of **porous scaffolds** for bone tissue engineering via low-temp. deposition)

IT Bending strength

Bone

Compressive strength

Human

Porosity

(fabrication of **porous scaffolds** for bone tissue engineering via low-temp. deposition)

IT Bone morphogenetic proteins

RL: THU (Therapeutic use); BIOL (Biological study); USES (Uses)

(fabrication of **porous scaffolds** for bone tissue engineering via low-temp. deposition)

IT Prosthetic materials and Prosthetics

(implants; fabrication of **porous scaffolds** for bone tissue engineering via low-temp. deposition)

IT 7758-87-4, Tricalcium phosphate 26161-42-2

26811-96-1, Poly(L-lactic acid)

RL: PEP (Physical, engineering or chemical process); PRP (Properties); PYP (Physical process); THU (Therapeutic use); BIOL (Biological study); PROC (Process); USES (Uses)

(fabrication of porous scaffolds for bone tissue engineering via low-temp. deposition)

L76 ANSWER 12 OF 46 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 2002:256581 HCAPLUS

DOCUMENT NUMBER: 136:289902

TITLE: Electronic systems, component devices, mechanisms, methods and procedures for macroscopic and microscopic molecular biological reaction, analyses and diagnostics

INVENTOR(S): Edman, Carl F.; Tu, Eugene; Gurtner, Christian; Westin, Lorelei; Heller, Michael J.

PATENT ASSIGNEE(S): Nanogen, Inc., USA

SOURCE: PCT Int. Appl., 125 pp.

CODEN: PIXXD2

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2002027312	A1	20020404	WO 2001-US30046	20010926

W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM

RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG

AU 2001094722	A5	20020408	AU 2001-94722	20010926
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PRIORITY APPLN. INFO.: US 2000-671954 A 20000927

WO 2001-US30046 W 20010926

AB This invention pertains to the design, fabrication, and uses of an electronic system which can actively carry out and control multi-step and multiplex reactions in macroscopic or microscopic formats. In particular, these reactions include mol. biol. reactions, such as nucleic acid hybridizations, nucleic acid amplification, sample prepn., antibody/antigen reactions, clin. diagnostics, combinatorial chem. and selection, drug screening, oligonucleotide and nucleic acid synthesis, peptide synthesis, biopolymer synthesis, and catalytic reactions. A key feature of the present invention is the ability to control the localized concn. of two or more reaction-dependent mols. and their reaction environment in order to greatly enhance the rate and specificity of the mol. biol. reaction. Elec. fields are utilized as an independent parameter to modulate or control the multi-step and multiplex reactions. The devices provide a controllable elec. (electrophoretic) field as a driving force to move and conc. nucleic acid mols. (probes and/or targets) or other reagents to a selected microscopic/macroscopic test site (with other fixed target or probe mols.). Utilization of particular buffer compns. on either side of the test site/semi-permeable matrix structure creates favorable reaction zones for the reactant mols. (e.g., DNA probes and targets), and the ability to strictly control or modulate the reaction at the test site. The devices are particularly useful for the acceleration of transport and hybridization of nucleic acids and the control of stringency of nucleic acid interactions.

REFERENCE COUNT: 4 THERE ARE 4 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

- IT **Pore size**
(of semipermeable membrane; electronic systems, component devices, mechanisms, methods and procedures for macroscopic and microscopic mol. biol. reaction, analyses and diagnostics)
- IT **Ceramics**
(support contg. semipermeable matrix; electronic systems, component devices, mechanisms, methods and procedures for macroscopic and microscopic mol. biol. reaction, analyses and diagnostics)
- IT **Biopolymers**
Nucleic acids
Oligonucleotides
Peptides, preparation
Proteins
RL: BPN (Biosynthetic preparation); SPN (Synthetic preparation); BIOL (Biological study); PREP (Preparation)
(synthesis of; electronic systems, component devices, mechanisms, methods and procedures for macroscopic and microscopic mol. biol. reaction, analyses and diagnostics)

L76 ANSWER 13 OF 46 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 2002:184847 HCAPLUS

DOCUMENT NUMBER: 136:236894

TITLE: Manufacture of orthopedic implants based on calcium in polymer matrix using supercritical fluid processing

INVENTOR(S): Mandel, Frederick S.; Wang, J. Don

PATENT ASSIGNEE(S): Ferro Corporation, USA

SOURCE: PCT Int. Appl., 27 pp.

CODEN: PIXXD2

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2002019947	A1	20020314	WO 2001-US26304	20010823
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, UZ, VN, YU, ZA, ZW				
RW: AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR				
US 6506213	B1	20030114	US 2000-658250	20000908
AU 2001086653	A5	20020322	AU 2001-86653	20010823
PRIORITY APPLN. INFO.: US 2000-658250 A 20000908				
WO 2001-US26304 W 20010823				

AB Orthopedic parts are manufd. using supercrit. fluid processing techniques in which starting materials and a process medium are mixed in a reactor to form a supercrit. fluid slurry. The starting materials include a source of calcium ions and a polymer matrix for the calcium ions. The process medium preferably is carbon dioxide which is supplied to the reactor in a supercrit. state or which is heated and pressurized in the reactor to attain a supercrit. state. A conduit connects the reactor to a mold that has a cavity of a desired shape for an orthopedic part. A flush valve interconnects the bottom of a reactor and the conduit. When the flush valve is opened, the slurry is directed through the conduit into the mold where solidification occurs very rapidly. The resultant product is a strong, porous structure that simulates autogenic bone. For

example, 280 g of a 50:50 mixt. of calcium sulfate and poly(.epsilon.-caprolactone) was charged into a one-gal reactor. Reactor was filled with 2.49 k of liq. CO₂ and heated to 38.degree. at a pressure of .apprx.116 bar rendering the CO₂ supercrit. fluid. After completion of mixing, the starting materials were formed into a supercrit. fluid slurry. The valve was opened and the slurry was directed through a conduit into a mold, the mold was filled instantly producing a solid rod with a very dense surface and a somewhat porous core.

IT 1306-06-5, Hydroxyapatite 7778-18-9, Calcium sulfate
10103-46-5, Dynafos

RL: DEV (Device component use); PEP (Physical, engineering or chemical process); THU (Therapeutic use); BIOL (Biological study); PROC (Process); USES (Uses)

(manuf. of orthopedic implants based on calcium in polymer matrix using supercrit. fluid processing)

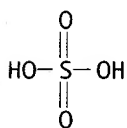
RN 1306-06-5 HCAPLUS

CN Hydroxylapatite (Ca₅(OH)(PO₄)₃) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
HO	1	14280-30-9
O4P	3	14265-44-2
Ca	5	7440-70-2

RN 7778-18-9 HCAPLUS

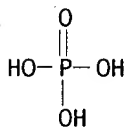
CN Sulfuric acid, calcium salt (1:1) (8CI, 9CI) (CA INDEX NAME)



Ca

RN 10103-46-5 HCAPLUS

CN Phosphoric acid, calcium salt (8CI, 9CI) (CA INDEX NAME)



x Ca

IT 24980-41-4, Poly(.epsilon.-caprolactone) 25248-42-4,
Poly[oxy(1-oxo-1,6-hexanediyl)] 26009-03-0, Poly(glycolic acid)
26023-30-3, Poly[oxy(1-methyl-2-oxo-1,2-ethanediyl)]
26063-00-3, Poly(3-hydroxybutyric acid) 26100-51-6,
Poly(lactic acid) 26124-68-5, Poly(glycolic acid)
26744-04-7 26780-50-7, Glycolide-lactide copolymer
RL: DEV (Device component use); PEP (Physical, engineering or chemical

process); THU (Therapeutic use); BIOL (Biological study); PROC (Process);
USES (Uses)

(matrix for calcium ions; manuf. of orthopedic implants based on
calcium in polymer matrix using supercrit. fluid processing)

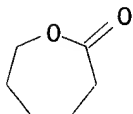
RN 24980-41-4 HCAPLUS

CN 2-Oxepanone, homopolymer (9CI) (CA INDEX NAME)

CM 1

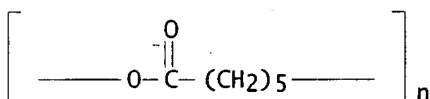
CRN 502-44-3

CMF C6 H10 O2



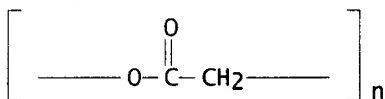
RN 25248-42-4 HCAPLUS

CN Poly[oxy(1-oxo-1,6-hexanediyl)] (9CI) (CA INDEX NAME)



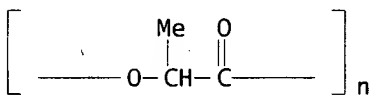
RN 26009-03-0 HCAPLUS

CN Poly[oxy(1-oxo-1,2-ethanediyl)] (9CI) (CA INDEX NAME)



RN 26023-30-3 HCAPLUS

CN Poly[oxy(1-methyl-2-oxo-1,2-ethanediyl)] (8CI, 9CI) (CA INDEX NAME)



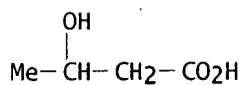
RN 26063-00-3 HCAPLUS

CN Butanoic acid, 3-hydroxy-, homopolymer (9CI) (CA INDEX NAME)

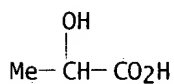
CM 1

CRN 300-85-6

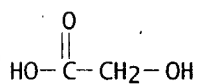
CMF C4 H8 O3



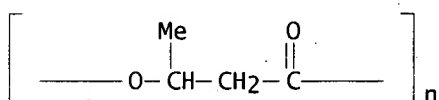
RN 26100-51-6 HCAPLUS
 CN Propanoic acid, 2-hydroxy-, homopolymer (9CI) (CA INDEX NAME)
 CM 1
 CRN 50-21-5
 CMF C3 H6 O3



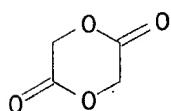
RN 26124-68-5 HCAPLUS
 CN Acetic acid, hydroxy-, homopolymer (9CI) (CA INDEX NAME)
 CM 1
 CRN 79-14-1
 CMF C2 H4 O3



RN 26744-04-7 HCAPLUS
 CN Poly[oxy(1-methyl-3-oxo-1,3-propanediyl)] (9CI) (CA INDEX NAME)



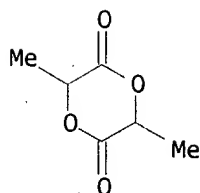
RN 26780-50-7 HCAPLUS
 CN 1,4-Dioxane-2,5-dione, 3,6-dimethyl-, polymer with 1,4-dioxane-2,5-dione (9CI) (CA INDEX NAME)
 CM 1
 CRN 502-97-6
 CMF C4 H4 O4



CM 2

CRN 95-96-5

CMF C6 H8 O4



REFERENCE COUNT: 5 THERE ARE 5 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

AB Orthopedic parts are manufd. using supercrit. fluid processing techniques in which starting materials and a process medium are mixed in a reactor to form a supercrit. fluid slurry. The starting materials include a source of calcium ions and a polymer matrix for the calcium ions. The process medium preferably is carbon dioxide which is supplied to the reactor in a supercrit. state or which is heated and pressurized in the reactor to attain a supercrit. state. A conduit connects the reactor to a mold that has a cavity of a desired shape for an orthopedic part. A flush valve interconnects the bottom of a reactor and the conduit. When the flush valve is opened, the slurry is directed through the conduit into the mold where solidification occurs very rapidly. The resultant product is a strong, **porous** structure that simulates autogenic bone. For example, 280 g of a 50:50 mixt. of calcium sulfate and poly(.epsilon.-caprolactone) was charged into a one-gal reactor. Reactor was filled with 2.49 k of liq. CO₂ and heated to 38.degree. at a pressure of .apprx.116 bar rendering the CO₂ supercrit. fluid. After completion of mixing, the starting materials were formed into a supercrit. fluid slurry. The valve was opened and the slurry was directed through a conduit into a mold, the mold was filled instantly producing a solid rod with a very dense surface and a somewhat **porous** core.

IT **Polyesters, biological studies**

RL: DEV (Device component use); PEP (Physical, engineering or chemical process); THU (Therapeutic use); BIOL (Biological study); PROC (Process); USES (Uses)

(azo-contg., matrix for calcium ions; manuf. of orthopedic implants based on calcium in polymer matrix using supercrit. fluid processing)

IT **Polyesters, biological studies**

RL: DEV (Device component use); PEP (Physical, engineering or chemical process); THU (Therapeutic use); BIOL (Biological study); PROC (Process); USES (Uses)

(caprolactone-based, matrix for calcium ions; manuf. of orthopedic implants based on calcium in polymer matrix using supercrit. fluid processing)

IT **Polyesters, biological studies**

RL: DEV (Device component use); PEP (Physical, engineering or chemical process); THU (Therapeutic use); BIOL (Biological study); PROC (Process); USES (Uses)

(dilactone-based, matrix for calcium ions; manuf. of orthopedic implants based on calcium in polymer matrix using supercrit. fluid processing)

IT **Polyesters, biological studies**

RL: DEV (Device component use); PEP (Physical, engineering or chemical

process); THU (Therapeutic use); BIOL (Biological study); PROC (Process);
USES (Uses)

(lactic acid-based, matrix for calcium ions; manuf. of orthopedic implants based on calcium in polymer matrix using supercrit. fluid processing)

IT Molding apparatus for plastics and rubbers

Molding of plastics and rubbers

Pore size

Porosity

Supercritical fluids

(manuf. of orthopedic implants based on calcium in polymer matrix using supercrit. fluid processing)

IT Polyanhydrides

Polyesters, biological studies

Polymers, biological studies

Polyoxyalkylenes, biological studies

Polyphosphazenes

Polyurethanes, biological studies

RL: DEV (Device component use); PEP (Physical, engineering or chemical process); THU (Therapeutic use); BIOL (Biological study); PROC (Process);

USES (Uses)

(matrix for calcium ions; manuf. of orthopedic implants based on calcium in polymer matrix using supercrit. fluid processing)

IT 62-54-4D, Calcium acetate, complexes **1306-06-5**, Hydroxyapatite

7440-70-2, Calcium, biological studies **7778-18-9**, Calcium

sulfate **7785-82-2**, EDTA calcium salt **10103-46-5**, Dynafos

12167-74-7, Calcium hydroxide phosphate (Ca₅(OH)(PO₄)₃) **13397-24-5**,

Gypsum, biological studies **26499-65-0**, Gypsum hemihydrate

RL: DEV (Device component use); PEP (Physical, engineering or chemical process); THU (Therapeutic use); BIOL (Biological study); PROC (Process);

USES (Uses)

(manuf. of orthopedic implants based on calcium in polymer matrix using supercrit. fluid processing)

IT 79-10-7D, Acrylic acid, esters, polymers **9002-86-2**, Polyvinyl chloride

9002-88-4, Polyethylene **9002-89-5**, Polyvinyl alcohol **9003-01-4**,

Polyacrylic acid **9003-05-8**, Polyacrylamide **9003-07-0**, Polypropylene

9003-97-8, Polycarbophil **9016-00-6**, Polydimethylsiloxane **24937-78-8**,

Ethylene-vinyl acetate copolymer **24980-41-4**,

Poly(.epsilon.-caprolactone) **25189-55-3**, Poly(N-isopropyl acrylamide)

25248-42-4, Poly[oxy(1-oxo-1,6-hexanediyl)] **25322-68-3**,

Polyethylene glycol **26009-03-0**, Poly(glycolic acid)

26023-30-3, Poly[oxy(1-methyl-2-oxo-1,2-ethanediyl)]

26063-00-3, Poly(3-hydroxybutyric acid) **26100-51-6**,

Poly(lactic acid) **26124-68-5**, Poly(glycolic acid)

26744-04-7 **26780-50-7**, Glycolide-lactide copolymer

31900-57-9, Polydimethylsiloxane **37353-59-6**, Hydroxymethyl cellulose

RL: DEV (Device component use); PEP (Physical, engineering or chemical

process); THU (Therapeutic use); BIOL (Biological study); PROC (Process);

USES (Uses)

(matrix for calcium ions; manuf. of orthopedic implants based on calcium in polymer matrix using supercrit. fluid processing)

L76 ANSWER 14 OF 46 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 2002:157554 HCAPLUS

DOCUMENT NUMBER: 136:205417

TITLE: A porous carrier for controlled drug release

INVENTOR(S): Sambrook, Rodney Martin; Austin, Wayne; Sambrook, Mark
Rodney; Hannon, Michael

PATENT ASSIGNEE(S): Dytech Corporation Ltd., UK

SOURCE: PCT Int. Appl., 57 pp.

DOCUMENT TYPE: Patent
 LANGUAGE: English
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2002015881	A2	20020228	WO 2001-GB3739	20010821
WO 2002015881	A3	20020627		

W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PH, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM
 RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG

AU 2001079970	A5	20020304	AU 2001-79970	20010821
PRIORITY APPLN. INFO.:			GB 2000-20610	A 20000821
			WO 2001-GB3739	W 20010821

AB A porous carrier having interconnected porosity is loaded with a drug or other material for controlled release of the drug or other material. Using a vacuum method cisplatin in an aq. sodium chloride soln. was injected onto an hydroxylapatite block of porosity 84.04%. After drying patches of yellow presumed to be cisplatin were obsd. on the surface of the block. No yellow color was obsd. within the block. Release of cisplatin was rapid, with almost the entire drug being released after 45 min. The fast release of the drug may indicate that penetration into the block is not occurring and the drug is merely being released from the surface of the block.

IT 1306-06-5, Hydroxylapatite 26780-50-7, Glycolide-lactide copolymer

RL: THU (Therapeutic use); BIOL (Biological study); USES (Uses)
 (porous carrier for controlled drug release)

RN 1306-06-5 HCAPLUS

CN Hydroxylapatite (Ca₅(OH)(PO₄)₃) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
HO	1	14280-30-9
O4P	3	14265-44-2
Ca	5	7440-70-2

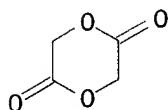
RN 26780-50-7 HCAPLUS

CN 1,4-Dioxane-2,5-dione, 3,6-dimethyl-, polymer with 1,4-dioxane-2,5-dione (9CI) (CA INDEX NAME)

CM 1

CRN 502-97-6

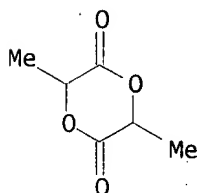
CMF C4 H4 O4



CM 2

CRN 95-96-5

CMF C6 H8 O4

**IT Polyesters, biological studies**

RL: THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(dilactone-based; porous carrier for controlled drug release)

IT Prosthetic materials and Prosthetics

(implants; porous carrier for controlled drug release)

IT Anti-inflammatory agents

Antibiotics

Biocompatibility

Ceramics

Density

Pore size distribution

(porous carrier for controlled drug release)

IT Bone morphogenetic proteins**Collagens**, biological studies

Coordination compounds

Growth factors, animal

Hormones, animal, biological studies

Metallocenes

Organometallic compounds

Platelet-derived **growth factors**

Polyanhydrides

Polymers, biological studies

Proteins

Sandwich compounds

Vitamins

RL: THU (Therapeutic use); BIOL (Biological study); USES (Uses)

(porous carrier for controlled drug release)

IT Transforming growth factors

RL: THU (Therapeutic use); BIOL (Biological study); USES (Uses)

(.beta.-; porous carrier for controlled drug release)

- IT** 50-24-8, Prednisolone 59-05-2, Methotrexate **1306-06-5**,
Hydroxylapatite 9002-72-6, Somatotropin 9003-01-4, Poly(acrylic acid)
14586-54-0 15663-27-1, Cisplatin 15766-00-4, Sm-153, biological
studies **26780-50-7**, Glycolide-lactide copolymer 62031-54-3,
FGF 67763-96-6, IGF-1 67763-97-7, IGF-II 81271-82-1, Sr-67,
biological studies 90409-78-2

RL: THU (Therapeutic use); BIOL (Biological study); USES (Uses)

(porous carrier for controlled drug release)

L76 ANSWER 15 OF 46 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 2002:103528 HCAPLUS

DOCUMENT NUMBER: 136:139899

TITLE: Biodegradable implant material comprising bioactive ceramic

INVENTOR(S): Niederauer, Gabriele; Kieswetter, Kristine; Leatherbury, Neil C.; Greenspan, David C.

PATENT ASSIGNEE(S): Osteobiologics, Inc., USA; Usbiomaterials Corporation

SOURCE: U.S., 17 pp., Cont.-in-part of U.S. 5,977,204.

CODEN: USXXAM

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 2

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 6344496	B1	20020205	US 1999-412559	19991005
US 5977204	A	19991102	US 1997-838921	19970411

PRIORITY APPLN. INFO.: US 1997-838921 A2 19970411

AB Biodegradable polymeric therapeutic substantially nonporous implant materials incorporating bioactive ceramics such as Bioglass ceramic are provided. These implants provide increased mech. properties and pH control, enabling the use of these materials to design porous and nonporous therapeutic implants used as cell scaffolds for healing of tissue defects or fixation devices, having desired degradn. times, mech. properties, elasticity and biocompatibility. To characterize the surface-reactive properties of the composites, specimens of 55/45 DL-PLG contg. 5, 10 and 20% Bioglass ceramic were suspended in simulated body fluid (SBF) for up to 8 wk at a surface area to vol. ratio of 0.1 cm⁻¹ at 37.degree.. At the end of various reaction times, samples were removed and surface reactivity detd. by FT-IR spectroscopy. At 8 wk, only composites with 20% Bioglass ceramic showed formation of an apatite layer which promotes close interaction with bone. Surface reactive properties can be tailored to the desired tissue by varying the Bioglass ceramic type and concn.

IT 1305-78-8, Calcium oxide, biological studies 26009-03-0, Polyglycolic acid 26023-30-3, Poly[oxy(1-methyl-2-oxo-1,2-ethanediyl)] 26100-51-6, Polylactic acid 26124-68-5, Polyglycolic acid 26780-50-7, Glycolide-lactide copolymer 34346-01-5, Glycolic acid-lactic acid copolymer

RL: THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(biodegradable implant material comprising bioactive ceramic)

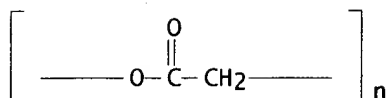
RN 1305-78-8 HCAPLUS

CN Calcium oxide (CaO) (9CI) (CA INDEX NAME)

Ca=O

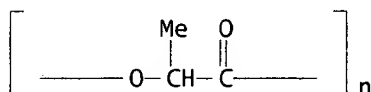
RN 26009-03-0 HCAPLUS

CN Poly[oxy(1-oxo-1,2-ethanediyl)] (9CI) (CA INDEX NAME)



RN 26023-30-3 HCAPLUS

CN Poly[oxy(1-methyl-2-oxo-1,2-ethanediyl)] (8CI, 9CI) (CA INDEX NAME)



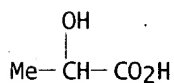
RN 26100-51-6 HCAPLUS

CN Propanoic acid, 2-hydroxy-, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 50-21-5

CMF C3 H6 O3



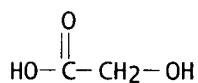
RN 26124-68-5 HCAPLUS

CN Acetic acid, hydroxy-, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 79-14-1

CMF C2 H4 O3



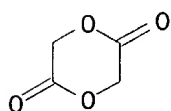
RN 26780-50-7 HCAPLUS

CN 1,4-Dioxane-2,5-dione, 3,6-dimethyl-, polymer with 1,4-dioxane-2,5-dione (9CI) (CA INDEX NAME)

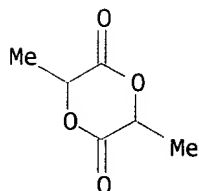
CM 1

CRN 502-97-6

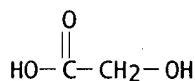
CMF C4 H4 O4



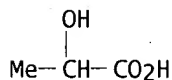
CM 2

CRN 95-96-5
CMF C6 H8 04RN 34346-01-5 HCAPLUS
CN Propanoic acid, 2-hydroxy-, polymer with hydroxyacetic acid (9CI) (CA INDEX NAME)

CM 1

CRN 79-14-1
CMF C2 H4 03

CM 2

CRN 50-21-5
CMF C3 H6 03

REFERENCE COUNT: 30 THERE ARE 30 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

CC 63-7 (Pharmaceuticals)

AB Biodegradable polymeric therapeutic substantially nonporous implant materials incorporating bioactive ceramics such as Bioglass ceramic are provided. These implants provide increased mech. properties and pH control, enabling the use of these materials to design **porous** and nonporous therapeutic implants used as cell **scaffolds** for healing of tissue defects or fixation devices, having desired degradn. times, mech. properties, elasticity and biocompatibility. To characterize the surface-reactive properties of the composites, specimens of 55/45 DL-PLG contg. 5, 10 and 20% Bioglass ceramic were suspended in simulated body fluid (SBF) for up to 8 wk at a surface area to vol. ratio of 0.1 cm⁻¹ at 37.degree.. At the end of various reaction times, samples were removed and surface reactivity detd. by FT-IR spectroscopy. At 8 wk, only composites with 20% Bioglass ceramic showed formation of an apatite **layer** which promotes close interaction with bone. Surface

reactive properties can be tailored to the desired tissue by varying the Bioglass ceramic type and concn.

IT **Polyesters, biological studies**

RL: THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(dilactone-based; biodegradable implant material comprising bioactive ceramic)

IT **Polyesters, biological studies**

RL: THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(hydroxycarboxylic acid-based; biodegradable implant material comprising bioactive ceramic)

IT **Polyesters, biological studies**

RL: THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(lactic acid-based; biodegradable implant material comprising bioactive ceramic)

IT **Ceramics**

(prosthetic implants, composite; biodegradable implant material comprising bioactive ceramic)

IT **Ceramics**

(prosthetic implants; biodegradable implant material comprising bioactive ceramic)

IT **1305-78-8**, Calcium oxide, biological studies 1313-59-3, Sodium oxide (Na₂O), biological studies 7631-86-9, Silica, biological studies **26009-03-0**, Polyglycolic acid **26023-30-3**, Poly[oxy(1-methyl-2-oxo-1,2-ethanediyl)] **26100-51-6**, Polylactic acid **26124-68-5**, Polyglycolic acid **26780-50-7**, Glycolide-lactide copolymer **34346-01-5**, Glycolic acid-lactic acid copolymer
RL: THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(biodegradable implant material comprising bioactive ceramic)

L76 ANSWER 16 OF 46 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 2002:89935 HCAPLUS

DOCUMENT NUMBER: 136:156489

TITLE: Three-dimensional medical assembly with biocompatible fibers for injury repair

INVENTOR(S): Leung, Jeffrey C.; Guilak, Farshid; Seaber, Anthony V.; Moutos, Franklin T.

PATENT ASSIGNEE(S): 3Tex, Inc., USA

SOURCE: PCT Int. Appl., 43 pp.

CODEN: PIXXD2

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2002007961	A1	20020131	WO 2001-US40094	20010212

W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM

RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG

PRIORITY APPLN. INFO.: US 2000-220002P P 20000721

AB A 3-dimensional fiber scaffold for injury repair, and methods of making and using the same. The scaffold includes at least 3

systems of fibers, wherein 2 of the 3 fiber systems define an upper **layer**, a lower **layer** and a medial **layer** between the upper **layer** and the lower **layer** within the 3-dimensional fiber **scaffold**, wherein one of the 3 fiber systems interconnects the upper **layer**, and the medial **layer**, and wherein the three fiber systems are each made of a biocompatible material.

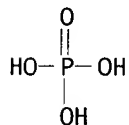
IT 1306-06-5, Hydroxyapatite 1398-61-4, Chitin
 7758-87-4, TriCalcium phosphate 9004-61-9,
 Hyaluronic acid 24980-41-4, Polycaprolactone
 25248-42-4, Polycaprolactone 26009-03-0, Polyglycolic
 acid 26023-30-3, Poly[oxy(1-methyl-2-oxo-1,2-ethanediyl)]
 26100-51-6, Polylactic acid 26124-68-5, Polyglycolic
 acid 26780-50-7, Glycolide-lactide copolymer
 RL: THU (Therapeutic use); BIOL (Biological study); USES (Uses)
 (fiber; 3-dimensional medical assembly with biocompatible fibers for
 injury repair)
 RN 1306-06-5 HCAPLUS
 CN Hydroxylapatite (Ca₅(OH)(PO₄)₃) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
HO	1	14280-30-9
O4P	3	14265-44-2
Ca	5	7440-70-2

RN 1398-61-4 HCAPLUS
 CN Chitin (8CI, 9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

RN 7758-87-4 HCAPLUS
 CN Phosphoric acid, calcium salt (2:3) (8CI, 9CI) (CA INDEX NAME)



3/2 Ca

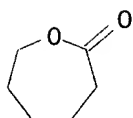
RN 9004-61-9 HCAPLUS
 CN Hyaluronic acid (8CI, 9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

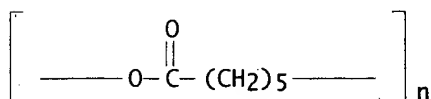
RN 24980-41-4 HCAPLUS
 CN 2-Oxepanone, homopolymer (9CI) (CA INDEX NAME)

CM 1

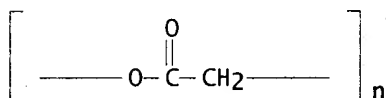
CRN 502-44-3
 CMF C6 H10 O2



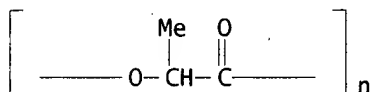
RN 25248-42-4 HCAPLUS
 CN Poly[oxy(1-oxo-1,6-hexanediyl)] (9CI) (CA INDEX NAME)



RN 26009-03-0 HCAPLUS
 CN Poly[oxy(1-oxo-1,2-ethanediyl)] (9CI) (CA INDEX NAME)



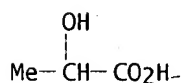
RN 26023-30-3 HCAPLUS
 CN Poly[oxy(1-methyl-2-oxo-1,2-ethanediyl)] (8CI, 9CI) (CA INDEX NAME)



RN 26100-51-6 HCAPLUS
 CN Propanoic acid, 2-hydroxy-, homopolymer (9CI) (CA INDEX NAME)

CM 1

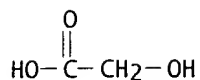
CRN 50-21-5
 CMF C3 H6 O3



RN 26124-68-5 HCAPLUS
 CN Acetic acid, hydroxy-, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 79-14-1
 CMF C2 H4 O3



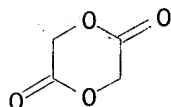
RN 26780-50-7 HCAPLUS

CN 1,4-Dioxane-2,5-dione, 3,6-dimethyl-, polymer with 1,4-dioxane-2,5-dione
(9CI) (CA INDEX NAME)

CM 1

CRN 502-97-6

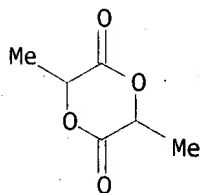
CMF C4 H4 O4



CM 2

CRN 95-96-5

CMF C6 H8 O4



REFERENCE COUNT: 3 THERE ARE 3 CITED REFERENCES AVAILABLE FOR THIS
RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

CC 63-7 (Pharmaceuticals)

AB A 3-dimensional fiber **scaffold** for injury repair, and methods of making and using the same. The **scaffold** includes at least 3 systems of fibers, wherein 2 of the 3 fiber systems define an upper **layer**, a lower **layer** and a medial **layer** between the upper **layer** and the lower **layer** within the 3-dimensional fiber **scaffold**, wherein one of the 3 fiber systems interconnects the upper **layer**, and the medial **layer**, and wherein the three fiber systems are each made of a biocompatible material.

IT Anti-infective agents
Biocompatibility
Coating materials
Electrolytes
Injury
Medical goods
Pore size distribution
Silk
Threads
Yarns

- (3-dimensional medical assembly with biocompatible fibers for injury repair)
- IT Acrylic fibers, biological studies
Carbon fibers, biological studies
Chemokines
Collagen fibers
Collagens, biological studies
Cytokines
Elastins
Fibrinogens
Fibrins
Fibronectins
Gelatins, biological studies
Glass fibers, biological studies
Glycosaminoglycans, biological studies
Growth factors, animal
Laminins
Lipids, biological studies
Metallic fibers
Minerals, biological studies
Polyamide fibers, biological studies
Polyester fibers, biological studies
Polypropene fibers, biological studies
Polyurethane fibers
Proteoglycans, biological studies
Quaternary ammonium compounds, biological studies
Synthetic fibers
Synthetic polymeric fibers, biological studies
Tenascins
Thrombospondins
Vinal fibers
RL: THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(3-dimensional medical assembly with biocompatible fibers for injury repair)
- IT Synthetic polymeric fibers, biological studies
RL: THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(chitin; 3-dimensional medical assembly with biocompatible fibers for injury repair)
- IT Synthetic polymeric fibers, biological studies
RL: THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(hyaluronic acid; 3-dimensional medical assembly with biocompatible fibers for injury repair)
- IT **Prosthetic materials and Prosthetics**
(implants; 3-dimensional medical assembly with biocompatible fibers for injury repair)
- IT **Polyesters, biological studies**
RL: PRP (Properties); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(polyoxalates, fiber; 3-dimensional medical assembly with biocompatible fibers for injury repair)
- IT **1306-06-5, Hydroxyapatite 1398-61-4, Chitin**
7440-25-7, Tantalum, biological studies 7758-87-4, TriCalcium phosphate 9002-84-0, Polytetrafluoroethylene 9002-88-4, Polyethylene 9002-89-5, Polyvinyl alcohol 9004-61-9, Hyaluronic acid 9012-76-4, Chitosan 24980-41-4, Polycaprolactone 25085-53-4, Isotactic polypropylene 25248-42-4, Polycaprolactone 26009-03-0, Polyglycolic acid 26023-30-3, Poly[oxy(1-methyl-2-oxo-1,2-ethanediyl)] 26100-51-6, Polylactic acid 26124-68-5, Polyglycolic acid 26780-50-7, Glycolide-lactide copolymer 29223-92-5 31621-87-1, Polydioxanone

31694-16-3, PEEK

RL: THU (Therapeutic use); BIOL (Biological study); USES (Uses)
 (fiber; 3-dimensional medical assembly with biocompatible fibers for
 injury repair)

L76 ANSWER 17 OF 46 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 2002:88361 HCAPLUS

DOCUMENT NUMBER: 137:206444

TITLE: Manufacture and evaluation of bioactive and
 biodegradable materials and **scaffolds** for
 tissue engineering

AUTHOR(S): Wang, M.; Chen, L. J.; Ni, J.; Weng, J.; Yue, C. Y.

CORPORATE SOURCE: School of Mechanical and Production Engineering,
 Nanyang Technological University, Singapore, 639798,
 Singapore

SOURCE: Journal of Materials Science: Materials in Medicine
 (2001), 12(10/11/12), 855-860

CODEN: JSMMEL; ISSN: 0957-4530

PUBLISHER: Kluwer Academic Publishers

DOCUMENT TYPE: Journal

LANGUAGE: English

AB For tissue regeneration and tissue engineering applications, a no. of
 bioactive and biodegradable composites, either **porous** or non-
porous, were fabricated. The newly developed materials included
 tricalcium phosphate reinforced polyhydroxybutyrate and its copolymer,
 poorly crystd. hydroxyapatite reinforced chitin, and plasma sprayed
 hydroxyapatite reinforced poly(L-lactic acid). It was shown that these
 new materials could be successfully produced using the manufg. techniques
 adopted. In vitro expts. revealed that the incorporation of bioceramic
 particles in biodegradable polymers rendered the composites bioactive and
 significantly improved the ability of composites to induce the formation
 of bone-like apatite on their surfaces. Degrn. of composite
scaffolds in simulated body fluid was obsd. and could be due to
 the simultaneous degrdn. of polymer matrix and dissoln. of bioceramic
 particles.

IT 1306-06-5, Hydroxyapatite 1398-61-4, Chitin

7758-87-4, Tricalcium phosphate

RL: THU (Therapeutic use); BIOL (Biological study); USES (Uses)
 (bioactive and biodegradable materials and **scaffolds** for
 tissue engineering)

RN 1306-06-5 HCAPLUS

CN Hydroxylapatite (Ca5(OH)(PO4)3) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
HO	1	14280-30-9
O4P	3	14265-44-2
Ca	5	7440-70-2

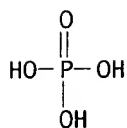
RN 1398-61-4 HCAPLUS

CN Chitin (8CI, 9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

RN 7758-87-4 HCAPLUS

CN Phosphoric acid, calcium salt (2:3) (8CI, 9CI) (CA INDEX NAME)



©3/2 Ca

REFERENCE COUNT: 14 THERE ARE 14 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

- TI Manufacture and evaluation of bioactive and biodegradable materials and **scaffolds** for tissue engineering
- AB For tissue regeneration and tissue engineering applications, a no. of bioactive and biodegradable composites, either **porous** or non-**porous**, were fabricated. The newly developed materials included tricalcium phosphate reinforced polyhydroxybutyrate and its copolymer, poorly crystd. hydroxyapatite reinforced chitin, and plasma sprayed hydroxyapatite reinforced poly(L-lactic acid). It was shown that these new materials could be successfully produced using the manufg. techniques adopted. In vitro expts. revealed that the incorporation of bioceramic particles in biodegradable polymers rendered the composites bioactive and significantly improved the ability of composites to induce the formation of bone-like apatite on their surfaces. Degrdsn. of composite **scaffolds** in simulated body fluid was obsd. and could be due to the simultaneous degrassn. of polymer matrix and dissoln. of bioceramic particles.
- IT Bone formation
Polymer degradation
(bioactive and biodegradable materials and **scaffolds** for tissue engineering)
- IT Polyesters, biological studies
RL: THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(bioactive and biodegradable materials and **scaffolds** for tissue engineering)
- IT Prosthetic materials and Prosthetics
(composites; bioactive and biodegradable materials and **scaffolds** for tissue engineering)
- IT 1306-06-5, Hydroxyapatite 1398-61-4, Chitin 7758-87-4, Tricalcium phosphate 26063-00-3, Polyhydroxybutyrate 26161-42-2 26744-04-7 26811-96-1, Poly(L-lactic acid) 133197-54-3
RL: THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(bioactive and biodegradable materials and **scaffolds** for tissue engineering)

L76 ANSWER 18 OF 46 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 2002:32075 HCAPLUS

DOCUMENT NUMBER: 137:174811

TITLE: Adsorption and release properties of growth factors from biodegradable implants

AUTHOR(S): Ziegler, J.; Mayr-Wohlfart, U.; Kessler, S.; Breitig, D.; Gunther, K.-P.

CORPORATE SOURCE: Orthopaedic Department (RKU), University of Ulm, Ulm, 89081, Germany

SOURCE: Journal of Biomedical Materials Research (2002), 59(3), 422-428

CODEN: JBMRBG; ISSN: 0021-9304

PUBLISHER: John Wiley & Sons, Inc.

DOCUMENT TYPE: Journal
 LANGUAGE: English

AB The present investigation was performed to study the adsorption behavior of growth factors and their release characteristics from biodegradable implants in an in vitro study. The authors investigated the stability of growth factors administered on various **scaffolds**. The authors used **porous** tricalcium phosphate ceramics (.alpha.-TCP), a neutralized glass ceramics (GB9N), a composite (polylactide/-glycolide/GB9N), and solvent dehydrated human bone as carriers. Block shaped **scaffolds** (sized: 7 .times. 7 .times. 10 mm) were loaded with 5 .mu.g of either bone morphogenetic protein (rxBMP-4), basic fibroblast growth factor (rh-bFGF), or vascular endothelial growth factor (rh-VEGF) solved in 150 .mu.L PBS. The growth factors were labeled with Iodine-125 (I-125) for detecting the adsorbed and released amt. of growth factors by counting the samples for total I-125 activity. The authors obsd. that the adsorption of these growth factors seems to depend on two different parameters: first on the nature of the tested material, and second on the growth factors on their own. The release kinetics of the growth factors from the biodegradable implants can be described as a two **phase** process-a very rapid release during the first hours by an elution of not adsorbed protein, followed by a specific release, which depends upon the chem./phys. interaction of the material and the growth factor used. Analyzing the eluted proteins on SDS-PAGES rh-VEGF was degraded into a smaller fragment with a size of around 15 kDa, while rxBMP-4 and rh-bFGF showed a complete degrdn. into fragments smaller than 3 kDa after more than 3 days. Although this in vitro study suggests that biodegradable implants might be successfully used as carriers for osteogenic growth factors, the different release kinetics as well as the alteration of their mol. structure including loss of biol. activity should be considered.

IT 26780-50-7, Lactide-glycolide copolymer
 RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
 (glass ceramic composites; adsorption and release properties of growth factors from biodegradable implants)

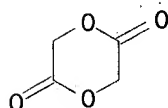
RN 26780-50-7 HCAPLUS

CN 1,4-Dioxane-2,5-dione, 3,6-dimethyl-, polymer with 1,4-dioxane-2,5-dione (9CI) (CA INDEX NAME)

CM 1

CRN 502-97-6

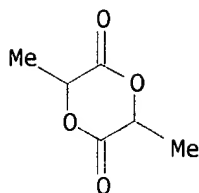
CMF C4 H4 04



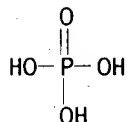
CM 2

CRN 95-96-5

CMF C6 H8 04



IT 7758-87-4, Tricalcium phosphate
 RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL
 (Biological study); USES (Uses)
 (glass ceramics; adsorption and release properties of growth factors
 from biodegradable implants)
 RN 7758-87-4 HCAPLUS
 CN Phosphoric acid, calcium salt (2:3) (8CI, 9CI) (CA INDEX NAME)



③3/2 Ca

REFERENCE COUNT: 19 THERE ARE 19 CITED REFERENCES AVAILABLE FOR THIS
 RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

CC 63-7 (Pharmaceuticals)

AB The present investigation was performed to study the adsorption behavior of growth factors and their release characteristics from biodegradable implants in an in vitro study. The authors investigated the stability of growth factors administered on various scaffolds. The authors used porous tricalcium phosphate ceramics (.alpha.-TCP), a neutralized glass ceramics (GB9N), a composite (polylactide/-glycolide/GB9N), and solvent dehydrated human bone as carriers. Block shaped scaffolds (sized: 7 .times. 7 .times. 10 mm) were loaded with 5 .mu.g of either bone morphogenetic protein (rxBMP-4), basic fibroblast growth factor (rh-bFGF), or vascular endothelial growth factor (rh-VEGF) solved in 150 .mu.L PBS. The growth factors were labeled with Iodine-125 (I-125) for detecting the adsorbed and released amt. of growth factors by counting the samples for total I-125 activity. The authors obsd. that the adsorption of these growth factors seems to depend on two different parameters: first on the nature of the tested material, and second on the growth factors on their own. The release kinetics of the growth factors from the biodegradable implants can be described as a two phase process-a very rapid release during the first hours by an elution of not adsorbed protein, followed by a specific release, which depends upon the chem./phys. interaction of the material and the growth factor used. Analyzing the eluted proteins on SDS-PAGEs rh-VEGF was degraded into a smaller fragment with a size of around 15 kDa, while rxBMP-4 and rh-bFGF showed a complete degrdn. into fragments smaller than 3 kDa after more than 3 days. Although this in vitro study suggests that biodegradable implants might be successfully used as carriers for osteogenic growth factors, the different release kinetics as well as the alteration of their mol. structure including loss of biol. activity should be considered.

- IT 26780-50-7, Lactide-glycolide copolymer
 RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
 (glass ceramic composites; adsorption and release properties of growth factors from biodegradable implants)
- IT 7758-87-4, Tricalcium phosphate
 RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
 (glass ceramics; adsorption and release properties of growth factors from biodegradable implants)

L76 ANSWER 19 OF 46 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 2001:780648 HCAPLUS

DOCUMENT NUMBER: 135:335147

TITLE: Polymer-based injectable sustained release pharmaceutical compositions for peptide and protein drugs

INVENTOR(S): Lee, Hee-yong; Lee, Hye-suk; Kim, Jung-soo; Kim, Sang-beom; Lee, Ji-suk; Choi, Ho-il; Chang, Seung-gu

PATENT ASSIGNEE(S): Peptron Inc., S. Korea

SOURCE: PCT Int. Appl., 37 pp.

CODEN: PIXXD2

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

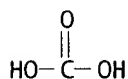
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2001078687	A1	20011025	WO 2001-KR462	20010322
W:	AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM			
RW:	GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG			
EP 1187602	A1	20020320	EP 2001-917893	20010322
R:	AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO			
US 2003026844	A1	20030206	US 2002-18870	20020418
PRIORITY APPLN. INFO.:			KR 2000-20484	A 20000418
			KR 2000-49344	A 20000824
			WO 2001-KR462	W 20010322

AB Controlled and sustained release injectable pharmaceutical comps. for a biopharmaceutical, such as peptides and proteins are described. Processes for prepn. of an injectable sustained release compn. comprises (i) a step of prepg. biodegradable porous microspheres having accessible ionic functional groups, (ii) a step of encapsulating a biopharmaceutical into the microspheres through ionic interaction by suspending or equilibrating the microspheres in a soln. contg. the biopharmaceutical, and (iii) a step of recovering and freeze-drying the biopharmaceutical-incorporated microspheres. For example, microspheres were prepd. by water/oil/water double emulsion solvent evapn. method using a hydrophilic 50:50 PLGA polymer (RG 502H), which contains free carboxy end groups. Deionized water (800 mL) was added to 1 g of PLGA polymer dissolved in 2 mL of methylene chloride and emulsified by sonication for 30 s using a probe type ultrasonic generator. This primary emulsion was dispersed into

200 mL of deionized water contg. 0.5% polyvinyl alc. (wt./vol.) in a vessel which connected to a const. temp. controller and mixed well by stirring for 15 min at 2500 rpm, 25.degree. using a mixer. After mixing for another 15 min at 1500 rpm, 25.degree., temp. of continuous phase was increased to 40.degree. to evap. methylene chloride. After 1 h stirring at 40.degree., 1500 rpm, temp. was decreased to 25.degree.. The hardened microspheres were collected by centrifugation and washed twice with 200 mL of deionized water, and then freeze-dried. The microspheres obtained were used for incorporation of protein drugs, i.e., ovalbumin, bovine serum albumin, human growth hormone, RNase A, or lysozyme through ionic interaction by simply soaking and equilibrating the microspheres into a buffer soln. having an appropriate concn. of protein.

IT 471-34-1, Calcium carbonate, biological studies
 RL: MOA (Modifier or additive use); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
 (alkalizing agent; prepn. of polymer-based injectable sustained-release microspheres for peptide and protein drugs)
 RN 471-34-1 HCAPLUS
 CN Carbonic acid calcium salt (1:1) (8CI, 9CI) (CA INDEX NAME)

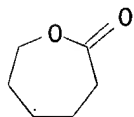


Ca

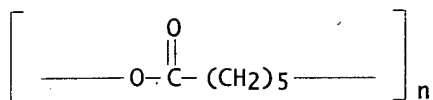
IT 24980-41-4, Polycaprolactone 25248-42-4,
 Polycaprolactone 26009-03-0, Polyglycolide 26023-30-3,
 Poly[oxy(1-methyl-2-oxo-1,2-ethanediyl)] 26680-10-4, Polylactide
 26780-50-7, Poly(lactide-co-glycolide) 34346-01-5,
 Resomer RG 502H
 RL: THU (Therapeutic use); BIOL (Biological study); USES (Uses)
 (prepn. of polymer-based injectable sustained-release microspheres for peptide and protein drugs)
 RN 24980-41-4 HCAPLUS
 CN 2-Oxepanone, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 502-44-3
 CMF C6 H10 O2

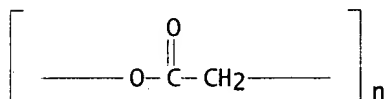


RN 25248-42-4 HCAPLUS
 CN Poly[oxy(1-oxo-1,6-hexanediyl)] (9CI) (CA INDEX NAME)



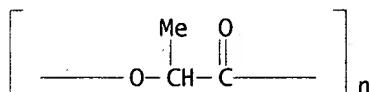
RN 26009-03-0 HCAPLUS

CN Poly[oxy(1-oxo-1,2-ethanediyl)] (9CI) (CA INDEX NAME)



RN 26023-30-3 HCAPLUS

CN Poly[oxy(1-methyl-2-oxo-1,2-ethanediyl)] (8CI, 9CI) (CA INDEX NAME)



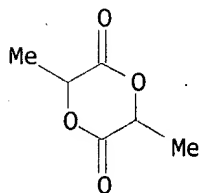
RN 26680-10-4 HCAPLUS

CN 1,4-Dioxane-2,5-dione, 3,6-dimethyl-, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 95-96-5

CMF C6 H8 O4



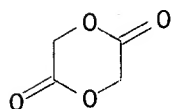
RN 26780-50-7 HCAPLUS

CN 1,4-Dioxane-2,5-dione, 3,6-dimethyl-, polymer with 1,4-dioxane-2,5-dione (9CI) (CA INDEX NAME)

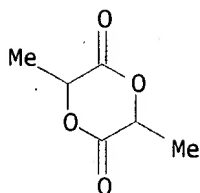
CM 1

CRN 502-97-6

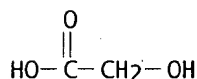
CMF C4 H4 O4



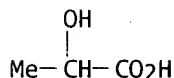
CM 2

CRN 95-96-5
CMF C6 H8 04RN 34346-01-5 HCAPLUS
CN Propanoic acid, 2-hydroxy-, polymer with hydroxyacetic acid (9CI) (CA INDEX NAME)

CM 1

CRN 79-14-1
CMF C2 H4 03

CM 2

CRN 50-21-5
CMF C3 H6 03

REFERENCE COUNT: 2 THERE ARE 2 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

AB Controlled and sustained release injectable pharmaceutical compns. for a biopharmaceutical, such as peptides and proteins are described. Processes for prepn. of an injectable sustained release compn. comprises (i) a step of prepg. biodegradable **porous** microspheres having accessible ionic functional groups, (ii) a step of encapsulating a biopharmaceutical into the microspheres through ionic interaction by suspending or equilibrating the microspheres in a soln. contg. the biopharmaceutical, and (iii) a step of recovering and freeze-drying the biopharmaceutical-incorporated microspheres. For example, microspheres were prepd. by water/oil/water double emulsion solvent evapn. method using a hydrophilic 50:50 PLGA polymer (RG 502H), which contains free carboxy end groups. Deionized water (800 mL) was added to 1 g of PLGA polymer dissolved in 2 mL of methylene chloride and emulsified by sonication for 30 s using a probe type ultrasonic generator. This primary emulsion was dispersed into 200 mL of deionized water contg. 0.5% polyvinyl alc. (wt./vol.) in a

vessel which connected to a const. temp. controller and mixed well by stirring for 15 min at 2500 rpm, 25.degree. using a mixer. After mixing for another 15 min at 1500 rpm, 25.degree., temp. of continuous phase was increased to 40.degree. to evap. methylene chloride. After 1 h stirring at 40.degree., 1500 rpm, temp. was decreased to 25.degree.. The hardened microspheres were collected by centrifugation and washed twice with 200 mL of deionized water, and then freeze-dried. The microspheres obtained were used for incorporation of protein drugs, i.e., ovalbumin, bovine serum albumin, human growth hormone, RNase A, or lysozyme through ionic interaction by simply soaking and equilibrating the microspheres into a buffer soln. having an appropriate concn. of protein.

IT Polymers, biological studies

Polyurethanes, biological studies

RL: THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(biodegradable; prepn. of polymer-based injectable sustained-release microspheres for peptide and protein drugs)

IT Polyesters, biological studies

RL: THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(caprolactone-based; prepn. of polymer-based injectable sustained-release microspheres for peptide and protein drugs)

IT Polyesters, biological studies

RL: THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(dilactone-based; prepn. of polymer-based injectable sustained-release microspheres for peptide and protein drugs)

IT Polyesters, biological studies

RL: THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(glycolide-based; prepn. of polymer-based injectable sustained-release microspheres for peptide and protein drugs)

IT Polyesters, biological studies

RL: THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(lactide; prepn. of polymer-based injectable sustained-release microspheres for peptide and protein drugs)

IT Polyesters, biological studies

RL: THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(polyamide-; prepn. of polymer-based injectable sustained-release microspheres for peptide and protein drugs)

IT Polyesters, biological studies

RL: THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(polyether-; prepn. of polymer-based injectable sustained-release microspheres for peptide and protein drugs)

IT Polyesters, biological studies

RL: THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(polyoxyalkylene-; prepn. of polymer-based injectable sustained-release microspheres for peptide and protein drugs)

IT Anti-infective agents

Antibacterial agents

Antiviral agents

Carboxyl group

Cryoprotectants

Evaporation

Fibrinolytics

Freeze drying

Particle size

Phase separation

Pulmonary surfactant

Solvent extraction

(prepn. of polymer-based injectable sustained-release microspheres for peptide and protein drugs)

IT Annexins

Bone morphogenetic proteins

Caseins, biological studies
 Collagens, biological studies
 Fibrinogens
 Hemoglobins
 Interferons
 Interleukin 1
 Interleukins
 Lymphotoxin
 Ovalbumin
 Platelet-derived growth factors
 Polyanhydrides
Polycarbonates, biological studies
 Polymer blends
 Polysaccharides, biological studies
 Proteins, general, biological studies
 Transferrins
 Transforming growth factors
 Tumor necrosis factors
 Zeins

RL: THU (Therapeutic use); BIOL (Biological study); USES (Uses)
 (prepn. of polymer-based injectable sustained-release microspheres for peptide and protein drugs)

- IT 102-71-6, Triethanolamine, biological studies 111-42-2, Diethanolamine, biological studies 141-43-5, Monoethanolamine, biological studies 144-55-8, Sodium bicarbonate, biological studies 471-34-1, Calcium carbonate, biological studies 546-93-0, Magnesium carbonate 994-36-5, Sodium citrate 1309-48-4, Magnesium oxide, biological studies 6284-40-8, Meglumine 7778-49-6, Potassium citrate 14987-04-3, Magnesium trisilicate

RL: MOA (Modifier or additive use); THU (Therapeutic use); BIOL (Biological study); USES (Uses)

(alkalizing agent; prepn. of polymer-based injectable sustained-release microspheres for peptide and protein drugs)

- IT 121-54-0, Benzethonium chloride 151-21-3, Sodium lauryl sulfate, biological studies 577-11-7, Docusate sodium 1393-25-5, Secretin 1398-61-4, Chitin 1402-38-6, Oncostatin 8044-71-1, Cetrimide 9001-25-6, Blood-coagulation factor VII 9001-28-9, Factor IX 9001-63-2, Lysozyme 9002-01-1, Streptokinase 9002-60-2, Adrenocorticotrophic hormone, biological studies 9002-61-3, Human chorionic gonadotropin 9002-67-9, Luteinizing hormone 9002-68-0, Follicle stimulating hormone 9002-69-1, Relaxin 9002-71-5, Thyroid stimulating hormone 9002-72-6, Growth hormone 9002-89-5, Polyvinyl alcohol 9004-10-8, Insulin, biological studies 9004-53-9, Dextrin 9004-54-0, Dextran, biological studies 9004-61-9, Hyaluronic acid 9005-25-8, Starch, biological studies 9005-32-7, Alginic acid 9005-49-6, Heparin, biological studies 9007-12-9, Calcitonin 9007-27-6, Chondroitin 9007-92-5, Glucagon, biological studies 9011-97-6, Cholecystokinin 9012-76-4, Chitosan 9015-71-8, Corticotropin releasing factor 9034-39-3, Growth hormone releasing factor 9035-68-1, Proinsulin 9039-53-6, Urokinase 9041-92-3, .alpha.1-Antitrypsin 9054-89-1, Superoxide dismutase 9056-36-4, Keratan sulfate 9061-61-4, Nerve growth factor 11096-26-7, Erythropoietin 15802-18-3D, Cyanoacrylic acid, esters, polymers 24980-41-4, Polycaprolactone 25104-18-1, Poly(L-lysine) 25248-42-4, Polycaprolactone 25868-59-1 25931-47-9 26009-03-0, Polyglycolide 26023-30-3, Poly[oxy(1-methyl-2-oxo-1,2-ethanediyl)] 26202-08-4, Polyglycolide 26680-10-4, Polylactide 26780-50-7, Poly(lactide-co-glycolide) 31621-87-1, Polydioxanone 34346-01-5, Resomer RG 502H 37221-79-7, Vasoactive intestinal polypeptide 38000-06-5;

Poly(L-lysine) 52906-92-0, Motilin 57285-09-3, Inhibin 59392-49-3, Gastric inhibitory peptide 59763-91-6, Pancreatic polypeptide 61912-98-9, Insulin-like growth factor 62229-50-9, Epidermal growth factor 62683-29-8, Colony stimulating factor 67763-96-6, Somatomedin C 77272-10-7, Macro cortin 80043-53-4, Gastrin releasing peptide 82657-92-9, Prourokinase 83652-28-2, Calcitonin gene-related peptide 85637-73-6, Atrial natriuretic factor 113189-02-9, Antihemophilic factor 139639-23-9, Tissue plasminogen activator

RL: THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(prepn. of polymer-based injectable sustained-release microspheres for peptide and protein drugs)

L76 ANSWER 20 OF 46 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 2001:755398 HCAPLUS

DOCUMENT NUMBER: 137:52262

TITLE: Development of biodegradable **porous scaffolds** for tissue engineering

AUTHOR(S): Chen, Guoping; Ushida, Takashi; Tateishi, Tetsuya

CORPORATE SOURCE: Tissue Engineering Research Center, National Institute of Advanced Industrial Science and Technology, Tsukuba, Ibaraki, 305-8562, Japan

SOURCE: Materials Science & Engineering, C: Biomimetic and Supramolecular Systems (2001), C17(1-2), 63-69
CODEN: MSCEEE; ISSN: 0928-4931

PUBLISHER: Elsevier Science B.V.

DOCUMENT TYPE: Journal

LANGUAGE: English

AB Three-dimensional biodegradable **porous scaffolds** play an important role in tissue engineering. A new method of prep. **porous scaffolds** composed of synthetic biodegradable polymers was developed by combining pyrogen leaching and freeze-drying techniques using preprepared ice particulates as the pyrogen material. The **pore** structures of the polymer **sponges** could be manipulated by controlling processing variables such as the size and wt. fraction of the ice particulates and the polymer concn. The synthetic polymer **sponges** were further hybridized with collagen **microsponges** to prep. biodegradable hybrid **porous sponges** of synthetic polymer and collagen. The collagen **microsponges** were formed in the **pores** of synthetic polymer **sponges**. The hybrid **sponges** exhibited the advantages of both the synthetic polymers and collagen. Hybrid **sponges** of synthetic polymer, collagen, and inorg. hydroxyapatite were developed by depositing hydroxyapatite particulates on the surfaces of the collagen **microsponges** in the synthetic polymer-collagen **sponges**. The use of synthetic polymer **sponge** as a mech. skeleton facilitated the formation of these hybrid **sponges** into desired shapes, contributed good mech. strength and handling, while the collagen and hydroxyapatite facilitated cell seeding and promoted cell interaction.

IT 1306-06-5, Hydroxyapatite 26780-50-7, Lactide-glycolide copolymer

RL: DEV (Device component use); THU (Therapeutic use); BIOL (Biological study); USES (Uses)

(biodegradable **porous scaffolds** for tissue engineering)

RN 1306-06-5 HCAPLUS

CN Hydroxylapatite (Ca₅(OH)(PO₄)₃) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number

HO	1	14280-30-9
O4P	3	14265-44-2
Ca	5	7440-70-2

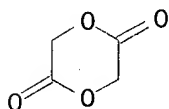
RN 26780-50-7 HCAPLUS

CN 1,4-Dioxane-2,5-dione, 3,6-dimethyl-, polymer with 1,4-dioxane-2,5-dione (9CI) (CA INDEX NAME)

CM 1

CRN 502-97-6

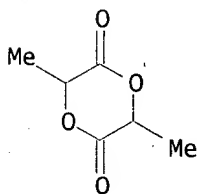
CMF C4 H4 O4



CM 2

CRN 95-96-5

CMF C6 H8 O4



REFERENCE COUNT: 33 THERE ARE 33 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

TI Development of biodegradable **porous scaffolds** for tissue engineering

AB Three-dimensional biodegradable **porous scaffolds** play an important role in tissue engineering. A new method of prepg. **porous scaffolds** composed of synthetic biodegradable polymers was developed by combining pyrogen leaching and freeze-drying techniques using preprepared ice particulates as the pyrogen material. The **pore** structures of the polymer **sponges** could be manipulated by controlling processing variables such as the size and wt. fraction of the ice particulates and the polymer concn. The synthetic polymer **sponges** were further hybridized with collagen **microsponges** to prep. biodegradable hybrid **porous sponges** of synthetic polymer and collagen. The collagen **microsponges** were formed in the **pores** of synthetic polymer **sponges**. The hybrid **sponges** exhibited the advantages of both the synthetic polymers and collagen. Hybrid **sponges** of synthetic polymer, collagen, and inorg. hydroxyapatite were developed by depositing hydroxyapatite particulates on the surfaces of the collagen **microsponges** in the synthetic polymer-collagen **sponges**. The use of synthetic polymer **sponge** as a mech. skeleton facilitated the formation of these hybrid **sponges** into

desired shapes, contributed good mech. strength and handling, while the collagen and hydroxyapatite facilitated cell seeding and promoted cell interaction.

ST hydroxyapatite collagen lactide glycolide sponge

IT Freeze drying

Leaching

Pore structure.

Prosthetic materials and Prosthetics

(biodegradable porous scaffolds for tissue engineering)

IT Collagens, biological studies

RL: DEV (Device component use); THU (Therapeutic use); BIOL (Biological study); USES (Uses)

(biodegradable porous scaffolds for tissue engineering)

IT Polymers, biological studies

RL: DEV (Device component use); THU (Therapeutic use); BIOL (Biological study); USES (Uses)

(biodegradable; biodegradable porous scaffolds for tissue engineering)

IT Polyesters, biological studies

RL: DEV (Device component use); THU (Therapeutic use); BIOL (Biological study); USES (Uses)

(dilactone-based; biodegradable porous scaffolds for tissue engineering)

IT Medical goods

(sponges; biodegradable porous scaffolds for tissue engineering)

IT 1306-06-5, Hydroxyapatite 26780-50-7, Lactide-glycolide copolymer

RL: DEV (Device component use); THU (Therapeutic use); BIOL (Biological study); USES (Uses)

(biodegradable porous scaffolds for tissue engineering)

L76 ANSWER 21 OF 46 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 2001:543281 HCAPLUS

DOCUMENT NUMBER: 136:90879

TITLE: Poly(DL-lactic-co-glycolic acid) sponge hybridized with collagen microsponges and deposited apatite particulates

AUTHOR(S): Chen, Guoping; Ushida, Takashi; Tateishi, Tetsuya

CORPORATE SOURCE: Tissue Engineering Research Center, National Institute of Advanced Industrial Science and Technology, Tsukuba, 305-8562, Japan

SOURCE: Journal of Biomedical Materials Research (2001), 57(1), 8-14

CODEN: JBMRBG; ISSN: 0021-9304

PUBLISHER: John Wiley & Sons, Inc.

DOCUMENT TYPE: Journal

LANGUAGE: English

AB A novel three-dimensional porous scaffold has been developed for bone tissue engineering by hybridizing synthetic poly(DL-lactic-co-glycolic acid) (PLGA), naturally derived collagen, and inorg. apatite. First, a porous PLGA sponge was prep'd. Then, collagen microsponges were formed in the pores of the PLGA sponge. Finally, apatite particulates were deposited on the surfaces of the collagen microsponges in the pores of PLGA sponge. The PLGA-collagen sponge served as a template for apatite deposition, and the deposition was accomplished by alternate immersion of PLGA-collagen sponge

in CaCl_2 and Na_2HPO_4 aq. solns. and centrifugation. The deposited particulates were small and scarce after one cycle of alternate immersion. Their no. and size increased with the no. of alternate immersion cycles. The surfaces of collagen microsponges were completely covered with apatite after three cycles of alternate immersion. The **porosity** of the hybrid sponge decreased gradually as the no. of alternate immersion increased. Energy-dispersive spectroscopy anal. and X-ray diffraction spectra showed that the calcium-to-phosphorus molar ratio of the deposited particulates and the level of crystallinity increased with the no. of alternate immersion cycles, and became almost the same as that of hydroxyapatite after four cycles of alternate immersion. The deposition process was controllable. Use of the PLGA sponge as a mech. skeleton facilitated formation of the PLGA-collagen-apatite hybrid sponge into desired shapes and collagen microsponges facilitated the uniform deposition of apatite particulates throughout the sponge. The PLGA-collagen-apatite hybrid sponge would serve as a useful three-dimensional **porous scaffold** for bone tissue engineering.

IT 1306-06-5, Hydroxyapatite

RL: FMU (Formation, unclassified); THU (Therapeutic use); BIOL (Biological study); FORM (Formation, nonpreparative); USES (Uses)
(poly(lactic-co-glycolic acid) sponge hybridized with **collagen** microsponges and deposited apatite particulates)

RN 1306-06-5 HCAPLUS

CN Hydroxylapatite ($\text{Ca}_5(\text{OH})(\text{PO}_4)_3$) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
HO	1	14280-30-9
O4P	3	14265-44-2
Ca	5	7440-70-2

REFERENCE COUNT: 31 THERE ARE 31 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

TI Poly(DL-lactic-co-glycolic acid) sponge hybridized with **collagen** microsponges and deposited apatite particulates

AB A novel three-dimensional **porous scaffold** has been developed for bone tissue engineering by hybridizing synthetic poly(DL-lactic-co-glycolic acid) (PLGA), naturally derived collagen, and inorg. apatite. First, a **porous** PLGA sponge was prepd. Then, collagen microsponges were formed in the **pores** of the PLGA sponge. Finally, apatite particulates were deposited on the surfaces of the collagen microsponges in the **pores** of PLGA sponge. The PLGA-collagen sponge served as a template for apatite deposition, and the deposition was accomplished by alternate immersion of PLGA-collagen sponge in CaCl_2 and Na_2HPO_4 aq. solns. and centrifugation. The deposited particulates were small and scarce after one cycle of alternate immersion. Their no. and size increased with the no. of alternate immersion cycles. The surfaces of collagen microsponges were completely covered with apatite after three cycles of alternate immersion. The **porosity** of the hybrid sponge decreased gradually as the no. of alternate immersion increased. Energy-dispersive spectroscopy anal. and X-ray diffraction spectra showed that the calcium-to-phosphorus molar ratio of the deposited particulates and the level of crystallinity increased with the no. of alternate immersion cycles, and became almost the same as that of hydroxyapatite after four cycles of alternate immersion. The deposition process was controllable. Use of the PLGA sponge as a mech. skeleton facilitated formation of the PLGA-collagen-apatite hybrid sponge into desired shapes and collagen microsponges facilitated the uniform

deposition of apatite particulates throughout the sponge. The PLGA-collagen-apatite hybrid sponge would serve as a useful three-dimensional **porous scaffold** for bone tissue engineering.

- ST lactate glycolate polymer sponge hybrid **collagen** bone
- IT Polyesters, biological studies
 RL: DEV (Device component use); PEP (Physical, engineering or chemical process); PYP (Physical process); THU (Therapeutic use); BIOL (Biological study); PROC (Process); USES (Uses)
 (hydroxycarboxylic acid-based; poly(lactic-co-glycolic acid) sponge hybridized with **collagen** microsponges and deposited apatite particulates)
- IT Bone
 (poly(lactic-co-glycolic acid) sponge hybridized with **collagen** microsponges and deposited apatite particulates)
- IT Medical goods
 (sponges; poly(lactic-co-glycolic acid) sponge hybridized with **collagen** microsponges and deposited apatite particulates)
- IT **Collagens**, biological studies
 RL: DEV (Device component use); PEP (Physical, engineering or chemical process); PYP (Physical process); THU (Therapeutic use); BIOL (Biological study); PROC (Process); USES (Uses)
 (type I; poly(lactic-co-glycolic acid) sponge hybridized with **collagen** microsponges and deposited apatite particulates)
- IT 34346-01-5, Glycolic acid-lactic acid copolymer
 RL: DEV (Device component use); PEP (Physical, engineering or chemical process); PYP (Physical process); THU (Therapeutic use); BIOL (Biological study); PROC (Process); USES (Uses)
 (poly(lactic-co-glycolic acid) sponge hybridized with **collagen** microsponges and deposited apatite particulates)
- IT 1306-06-5, Hydroxyapatite
 RL: FMU (Formation, unclassified); THU (Therapeutic use); BIOL (Biological study); FORM (Formation, nonpreparative); USES (Uses)
 (poly(lactic-co-glycolic acid) sponge hybridized with **collagen** microsponges and deposited apatite particulates)
- IT 7647-14-5, Sodium chloride, biological studies
 RL: PEP (Physical, engineering or chemical process); PYP (Physical process); THU (Therapeutic use); BIOL (Biological study); PROC (Process); USES (Uses)
 (poly(lactic-co-glycolic acid) sponge hybridized with **collagen** microsponges and deposited apatite particulates)

L76 ANSWER 22 OF 46 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 2001:474508 HCAPLUS

DOCUMENT NUMBER: 136:221654

TITLE: Processing of bioresorbable **scaffolds** for tissue engineering of bone by applying rapid prototyping technologies

AUTHOR(S): Hutmacher, D. W.; Zein, I.; Teoh, S. H.

CORPORATE SOURCE: Laboratory for Biomedical Engineering (LBME) Centre for Biomedical Materials, Applications and Technology (BIOMAT), National University of Singapore, Singapore, 119260, Singapore

SOURCE: Processing and Fabrication of Advanced Materials VIII, Proceedings of a Symposium, 8th, Singapore, Singapore, Sept. 8-10, 1999 (2000), Meeting Date 1999, 201-206. Editor(s): Khor, K. A. World Scientific Publishing Co. Pte. Ltd.: Singapore, Singapore.

CODEN: 69BLIF

DOCUMENT TYPE: Conference

LANGUAGE: English

AB Tissue engineering is based on the concept that cells seeded on three-dimensional (3D) bioresorbable **scaffolds** can recapitulate native tissues under appropriate in vitro and in vivo conditions. The necessity of a **scaffold** structure as the basic template of engineering tissues has encouraged the use of advanced manufg. technologies. For example, rapid prototyping (RP) technologies such as fused deposition modeling (FDM) and three-dimensional printing (3DP) can be used to fabricate complex 3D structures based on 2D cross-sectional data obtained from slicing a computer-aided design (CAD) model. FDM is currently being applied in our lab. to fabricate 3D **scaffolds** of various **porosity** and micro-architecture. This fabrication technol. offers the ease and flexibility of varying the **scaffold** characteristics to meet specific structural and functional requirements of the tissue of interest. The FDM process involves the extrusion of a polymer filament through a heated nozzle and deposition as thin **layers** to build a CAD software-designed phys. structure. Our current research focuses on the investigation of a bioresorbable composite matrix, namely poly(caprolactone) (PCL) in combination with hydroxyapatite (HA) as the materials of choice to produce **scaffolds** for tissue engineering bone.

IT 1306-06-5, Hydroxyapatite 24980-41-4, Poly(caprolactone)

25248-42-4, Poly(caprolactone)

RL: DEV (Device component use); PEP (Physical, engineering or chemical process); PRP (Properties); PYP (Physical process); THU (Therapeutic use); BIOL (Biological study); PROC (Process); USES (Uses)

(bioresorbable **scaffolds** for tissue engineering of bone by applying rapid prototyping technol.)

RN 1306-06-5 HCAPLUS

CN Hydroxylapatite (Ca₅(OH)(PO₄)₃) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
HO	1	14280-30-9
O4P	3	14265-44-2
Ca	5	7440-70-2

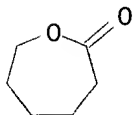
RN 24980-41-4 HCAPLUS

CN 2-Oxepanone, homopolymer (9CI) (CA INDEX NAME)

CM 1

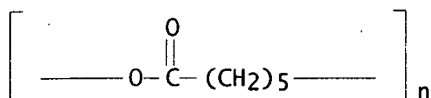
CRN 502-44-3

CMF C6 H10 O2



RN 25248-42-4 HCAPLUS

CN Poly[oxy(1-oxo-1,6-hexanediyl)] (9CI) (CA INDEX NAME)



REFERENCE COUNT: 4 THERE ARE 4 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

- TI Processing of bioresorbable **scaffolds** for tissue engineering of bone by applying rapid prototyping technologies
- CC 63-7 (Pharmaceuticals)
- AB Tissue engineering is based on the concept that cells seeded on three-dimensional (3D) bioresorbable **scaffolds** can recapitulate native tissues under appropriate in vitro and in vivo conditions. The necessity of a **scaffold** structure as the basic template of engineering tissues has encouraged the use of advanced manufg. technologies. For example, rapid prototyping (RP) technologies such as fused deposition modeling (FDM) and three-dimensional printing (3DP) can be used to fabricate complex 3D structures based on 2D cross-sectional data obtained from slicing a computer-aided design (CAD) model. FDM is currently being applied in our lab. to fabricate 3D **scaffolds** of various **porosity** and micro-architecture. This fabrication technol. offers the ease and flexibility of varying the **scaffold** characteristics to meet specific structural and functional requirements of the tissue of interest. The FDM process involves the extrusion of a polymer filament through a heated nozzle and deposition as thin **layers** to build a CAD software-designed phys. structure. Our current research focuses on the investigation of a bioresorbable composite matrix, namely poly(caprolactone) (PCL) in combination with hydroxyapatite (HA) as the materials of choice to produce **scaffolds** for tissue engineering bone.
- ST caprolactone hydroxyapatite **scaffold** bone
- IT Bone
(artificial; processing of bioresorbable **scaffolds** for tissue engineering of bone by applying rapid prototyping technol.)
- IT Prosthetic materials and Prosthetics
Surface structure
(bioresorbable **scaffolds** for tissue engineering of bone by applying rapid prototyping technol.)
- IT Coating process
(extrusion; bioresorbable **scaffolds** for tissue engineering of bone by applying rapid prototyping technol.)
- IT **Polyesters, biological studies**
RL: DEV (Device component use); PEP (Physical, engineering or chemical process); PRP (Properties); PYP (Physical process); THU (Therapeutic use); BIOL (Biological study); PROC (Process); USES (Uses)
(lactone-based; bioresorbable **scaffolds** for tissue engineering of bone by applying rapid prototyping technol.)
- IT 1306-06-5, Hydroxyapatite 24980-41-4, Poly(caprolactone) 25248-42-4, Poly(caprolactone)
RL: DEV (Device component use); PEP (Physical, engineering or chemical process); PRP (Properties); PYP (Physical process); THU (Therapeutic use); BIOL (Biological study); PROC (Process); USES (Uses)
(bioresorbable **scaffolds** for tissue engineering of bone by applying rapid prototyping technol.)

L76 ANSWER 23 OF 46 HCAPLUS COPYRIGHT 2003 ACS
ACCESSION NUMBER: 2001:355499 HCAPLUS
DOCUMENT NUMBER: 135:127136

TITLE: O-Carboxymethyl-**Chitin** Concentration in Granulocytes during Bone Repair
 AUTHOR(S): Tokura, Seiichi; Tamura, Hiroshi
 CORPORATE SOURCE: Faculty of Engineering and HRC, Kansai University, Suita Osaka, 564-8680, Japan
 SOURCE: Biomacromolecules (2001), 2(2), 417-421
 CODEN: BOMAF6; ISSN: 1525-7797
 PUBLISHER: American Chemical Society
 DOCUMENT TYPE: Journal
 LANGUAGE: English

AB Peroral and i.v. administrations of ¹⁴C-labeled carboxymethyl-chitin (CM-chitin) revealed that CM-chitin accumulated in bone marrow. Thus, a composite of CM-chitin with hydroxyapatite (HA) was prepd. to examine the bone repairing properties by animal and cell line expts. The new bone formation of CM-chitin.cntdot.HA composite was superior to that of CM-chitin, HA, or blank. A **porous** CM-chitin.cntdot.HA composite is a functional material which could act as a **scaffolding** of osteoblast-like cells, a barrier to ingrowth of fibrous connective tissues. The cytotoxicity of CM-chitin was evaluated using the MC3T3-E1 cell line, and the authors found that control of degree of deacetylation is a very important factor in using CM-chitin as bone repairing material.

IT 1306-06-5, Hydroxyapatite

RL: THU (Therapeutic use); BIOL (Biological study); USES (Uses)
 (composite implant contg.; O-carboxymethyl-**chitin** concn. in granulocytes during bone repair)

RN 1306-06-5 HCAPLUS

CN Hydroxylapatite (Ca5(OH)(PO4)3) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
HO	1	14280-30-9
O4P	3	14265-44-2
Ca	5	7440-70-2

REFERENCE COUNT: 12 THERE ARE 12 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

TI O-Carboxymethyl-**Chitin** Concentration in Granulocytes during Bone Repair

AB Peroral and i.v. administrations of ¹⁴C-labeled carboxymethyl-chitin (CM-chitin) revealed that CM-chitin accumulated in bone marrow. Thus, a composite of CM-chitin with hydroxyapatite (HA) was prepd. to examine the bone repairing properties by animal and cell line expts. The new bone formation of CM-chitin.cntdot.HA composite was superior to that of CM-chitin, HA, or blank. A **porous** CM-chitin.cntdot.HA composite is a functional material which could act as a **scaffolding** of osteoblast-like cells, a barrier to ingrowth of fibrous connective tissues. The cytotoxicity of CM-chitin was evaluated using the MC3T3-E1 cell line, and the authors found that control of degree of deacetylation is a very important factor in using CM-chitin as bone repairing material.

ST carboxymethyl **chitin** granulocyte bone repair composite implant

IT Bone marrow

Polymorphonuclear leukocyte

Wound healing

(O-carboxymethyl-**chitin** concn. in granulocytes during bone repair)

IT Prosthetic materials and Prosthetics

(composites, implants; O-carboxymethyl-**chitin** concn. in granulocytes during bone repair)

IT Bone formation

(repair; O-carboxymethyl-**chitin** concn. in granulocytes during bone repair)

IT 1306-06-5, Hydroxyapatite 52108-64-2, 6-O-Carboxymethyl-**chitin**

RL: THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(composite implant contg.; O-carboxymethyl-**chitin** concn. in granulocytes during bone repair)

L76 ANSWER 24 OF 46 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 2001:265567 HCAPLUS

DOCUMENT NUMBER: 134:271315

TITLE: Bio-artificial substrate based on polymer combination with fibroin for the production of animal and, in particular, human tissues and organs

INVENTOR(S): Armato, Ubaldo; Migliaresi, Claudio; Motta, Antonella

PATENT ASSIGNEE(S): Consorzio per Gli Studi Universitari, Italy

SOURCE: PCT Int. Appl., 75 pp.

CODEN: PIXXD2

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2001025403	A2	20010412	WO 2000-IT382	20000928
WO 2001025403	A3	20011108		

W: AE, AG, AL, AU, BA, BB, BG, BR, BZ, CA, CN, CR, CU, CZ, DM, DZ, EE, GD, GE, HR, HU, ID, IL, IN, IS, JP, KP, KR, LC, LK, LR, LT, LV, MA, MG, MK, MN, MX, NO, NZ, PL, RO, SG, SI, SK, TR, TT, UA, US, UZ, VN, YU, ZA, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM

RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG

IT 1309453	B1	20020123	IT 1999-VR82	19991001
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EP 1218490	A2	20020703	EP 2000-969802	20000928
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R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL

PRIORITY APPLN. INFO.: IT 1999-VR82 A 19991001
WO 2000-IT382 W 20000928

AB A substrate suitable for the survival, the proliferation and the correct differentiation and functioning of specialized tissue cells of the human and animal body, consisting of a material that is bio-compatible and bio-resorbable in pre-determinable times, which can be transplanted or implanted onto or connected with the body in order to achieve a complete integration of the transplanted, implanted or connected tissue with the other cell systems and their functions in the organism onto which the transplant or the implant or with which the connection has been made, and comprising a mixt. and/or combination of natural and/or synthetic polymers in which fibroin is present. The in vitro culture of normal neonatal rat liver hepatocytes was grown on plastic flasks with treated or untreated surfaces to increase cell adhesion, fibroin membranes, and ultrathin porous disks of nontoxic polyethylene. Enrichment with growth factors increased the size of the proliferating hepatocellular fraction and, at the same time, of the hepatocellular population as a whole.

AB A substrate suitable for the survival, the proliferation and the correct differentiation and functioning of specialized tissue cells of the human and animal body, consisting of a material that is bio-compatible and bio-resorbable in pre-determinable times, which can be transplanted or implanted onto or connected with the body in order to achieve a complete

integration of the transplanted, implanted or connected tissue with the other cell systems and their functions in the organism onto which the transplant or the implant or with which the connection has been made, and comprising a mixt. and/or combination of natural and/or synthetic polymers in which fibroin is present. The in vitro culture of normal neonatal rat liver hepatocytes was grown on plastic flasks with treated or untreated surfaces to increase cell adhesion, fibroin membranes, and ultrathin porous disks of nontoxic polyethylene. Enrichment with growth factors increased the size of the proliferating hepatocellular fraction and, at the same time, of the hepatocellular population as a whole.

IT Prosthetic materials and Prosthetics

(alloys, implants, **scaffold**; bioartificial substrate based on polymer combination with fibroin for prodn. of tissues and organs)

IT Biopolymers

Fibroin

Plastics, biological studies

Polymers, biological studies

RL: DEV (Device component use); THU (Therapeutic use); BIOL (Biological study); USES (Uses)

(bioartificial substrate based on polymer combination with fibroin for prodn. of tissues and organs)

IT Prosthetic materials and Prosthetics

(ceramic, implants, **scaffolds**; bioartificial substrate based on polymer combination with fibroin for prodn. of tissues and organs)

IT Prosthetic materials and Prosthetics

(polymers, **scaffold**; bioartificial substrate based on polymer combination with fibroin for prodn. of tissues and organs)

IT Ceramics

(prosthetic implants, **scaffolds**; bioartificial substrate based on polymer combination with fibroin for prodn. of tissues and organs)

L76 ANSWER 25 OF 46 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 2001:31372 HCAPLUS

DOCUMENT NUMBER: 134:105910

TITLE: Process for manufacturing polymeric biomedical foams

INVENTOR(S): Vyakarnam, Murty N.; Roller, Mark B.; Gorky, David V.; Scopelianos, Angelo George

PATENT ASSIGNEE(S): Ethicon, Inc., USA

SOURCE: PCT Int. Appl., 70 pp.

CODEN: PIXXD2

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2001002033	A1	20010111	WO 2000-US163	20000105
W: AE, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CR, CU, CZ, DE, DK, DM, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
RW: GH, GM, KE, LS, MW, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG				
US 6355699	B1	20020312	US 1999-345095	19990630

PRIORITY APPLN. INFO.:

US 1999-345095 A 19990630

AB The present invention provides an improved lyophilization process for forming biocompatible foam structures. The process allows the foam structures to be tailored for specific end uses. The foams formed by this process are well suited to be used in medical applications such as tissue engineering. The foam structures may also contain pharmaceutically active substances. A random copolymer of .epsilon.-caprolactone-glycolide was prepd. was synthesized by ring opening polymn. reaction. The inherent viscosity of the copolymer was detd. in hexafluoroisopropanol. A biomedical foam was obtained based on the above polymer.

IT 41706-81-4P, .epsilon.-Caprolactone-glycolide copolymer
 65408-67-5P, .epsilon.-Caprolactone-L-lactide copolymer
 70524-20-8P, .epsilon.-Caprolactone-lactide copolymer
 RL: PRP (Properties); SPN (Synthetic preparation); THU (Therapeutic use);
 BIOL (Biological study); PREP (Preparation); USES (Uses)
 (process for manufg. polymeric biomedical foams)

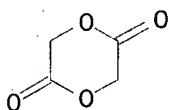
RN 41706-81-4 HCAPLUS

CN 1,4-Dioxane-2,5-dione, polymer with 2-oxepanone (9CI) (CA INDEX NAME)

CM 1

CRN 502-97-6

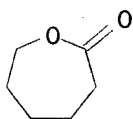
CMF C4 H4 04



CM 2

CRN 502-44-3

CMF C6 H10 02



RN 65408-67-5 HCAPLUS

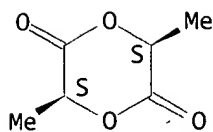
CN 1,4-Dioxane-2,5-dione, 3,6-dimethyl-, (3S,6S)-, polymer with 2-oxepanone
 (9CI) (CA INDEX NAME)

CM 1

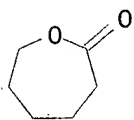
CRN 4511-42-6

CMF C6 H8 04

Absolute stereochemistry.



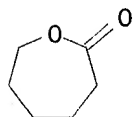
CM 2

CRN 502-44-3
CMF C6 H10 O2

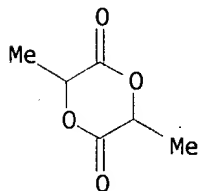
RN 70524-20-8 HCAPLUS

CN 1,4-Dioxane-2,5-dione, 3,6-dimethyl-, polymer with 2-oxepanone (9CI) (CA
INDEX NAME)

CM 1

CRN 502-44-3
CMF C6 H10 O2

CM 2

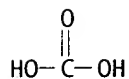
CRN 95-96-5
CMF C6 H8 O4

IT 471-34-1, Calcium carbonate, biological studies 9005-32-7
 , Alginic acid 10103-46-5, Calcium phosphate
 24980-41-4, Poly(.epsilon.-caprolactone) 25248-42-4,
 Poly[oxy(1-oxo-1,6-hexanediyl)] 26009-03-0, Polyglycolic acid
 26023-30-3, Poly[oxy(1-methyl-2-oxo-1,2-ethanediyl)]
 26063-00-3, Poly(hydroxybutyrate) 26100-51-6, Polylactic
 acid 26124-68-5, Polyglycolic acid 26680-10-4,

Poly(lactide 26744-04-7, Poly(.beta.-butyrolactone), sru
 RL: THU (Therapeutic use); BIOL (Biological study); USES (Uses)
 (process for manufg. polymeric biomedical foams)

RN 471-34-1 HCAPLUS

CN Carbonic acid calcium salt (1:1) (8CI, 9CI) (CA INDEX NAME)



Ca

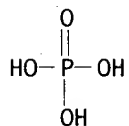
RN 9005-32-7 HCAPLUS

CN Alginic acid (8CI, 9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

RN 10103-46-5 HCAPLUS

CN Phosphoric acid, calcium salt (8CI, 9CI) (CA INDEX NAME)



x Ca

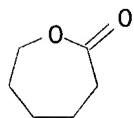
RN 24980-41-4 HCAPLUS

CN 2-Oxepanone, homopolymer (9CI) (CA INDEX NAME)

CM 1

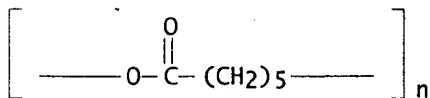
CRN 502-44-3

CMF C6 H10 O2



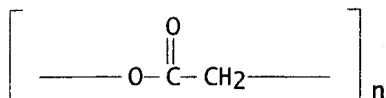
RN 25248-42-4 HCAPLUS

CN Poly[oxy(1-oxo-1,6-hexanediyl)] (9CI) (CA INDEX NAME)



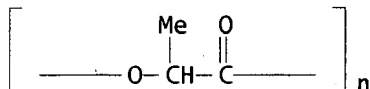
RN 26009-03-0 HCAPLUS

CN Poly[oxy(1-oxo-1,2-ethanediyl)] (9CI) (CA INDEX NAME)



RN 26023-30-3 HCAPLUS

CN Poly[oxy(1-methyl-2-oxo-1,2-ethanediyl)] (8CI, 9CI) (CA INDEX NAME)



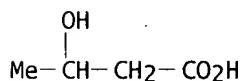
RN 26063-00-3 HCAPLUS

CN Butanoic acid, 3-hydroxy-, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 300-85-6

CMF C4 H8 O3



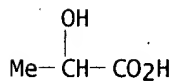
RN 26100-51-6 HCAPLUS

CN Propanoic acid, 2-hydroxy-, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 50-21-5

CMF C3 H6 O3



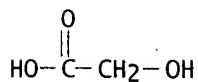
RN 26124-68-5 HCAPLUS

CN Acetic acid, hydroxy-, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 79-14-1

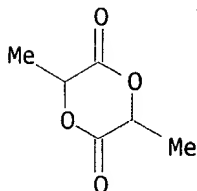
CMF C2 H4 O3



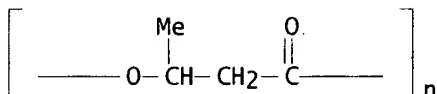
RN 26680-10-4 HCAPLUS
 CN 1,4-Dioxane-2,5-dione, 3,6-dimethyl-, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 95-96-5
 CMF C6 H8 O4



RN 26744-04-7 HCAPLUS
 CN Poly[oxy(1-methyl-3-oxo-1,3-propanediyl)] (9CI) (CA INDEX NAME)



REFERENCE COUNT: 3 THERE ARE 3 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

- TI Process for manufacturing polymeric biomedical foams
- AB The present invention provides an improved lyophilization process for forming biocompatible foam structures. The process allows the foams to be tailored for specific end uses. The foams formed by this process are well suited to be used in medical applications such as tissue engineering. The foam structures may also contain pharmaceutically active substances. A random copolymer of .epsilon.-caprolactone-glycolide was prep'd. was synthesized by ring opening polymn. reaction. The inherent viscosity of the copolymer was det'd. in hexafluoroisopropanol. A biomedical foam was obtained based on the above polymer.
- ST polymer biomedical foam prepn; polyester biomedical foam prepn
- IT **Polyesters, biological studies**
 RL: PRP (Properties); SPN (Synthetic preparation); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
 (caprolactone-based; process for manufg. polymeric biomedical foams)
- IT Bone
 (demineralized particles; process for manufg. polymeric biomedical foams)
- IT Medical goods
 (dressings; process for manufg. polymeric biomedical foams)
- IT Drug delivery systems
 (foams; process for manufg. polymeric biomedical foams)
- IT **Polyesters, biological studies**
 RL: PRP (Properties); SPN (Synthetic preparation); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
 (glycolide-based; process for manufg. polymeric biomedical

- foams)
- IT **Prosthetic materials and Prosthetics**
(implants; process for manufg. polymeric biomedical foams)
- IT **Polyesters, biological studies**
RL: PRP (Properties); SPN (Synthetic preparation); THU (Therapeutic use);
BIOL (Biological study); PREP (Preparation); USES (Uses)
(lactic acid-based; process for manufg. polymeric biomedical foams)
- IT **Polyesters, biological studies**
RL: PRP (Properties); SPN (Synthetic preparation); THU (Therapeutic use);
BIOL (Biological study); PREP (Preparation); USES (Uses)
(lactide; process for manufg. polymeric biomedical foams)
- IT Analgesics
Anti-infective agents
Anti-inflammatory agents
Freeze drying
Glass transition temperature
Pore size distribution
(process for manufg. polymeric biomedical foams)
- IT Polymer blends
RL: POF (Polymer in formulation); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(process for manufg. polymeric biomedical foams)
- IT Gelatins, biological studies
Growth factors, animal
Hormones, animal, biological studies
Polyester rubber
Polyesters, biological studies
RL: THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(process for manufg. polymeric biomedical foams)
- IT **41706-81-4P**, .epsilon.-Caprolactone-glycolide copolymer
65408-67-5P, .epsilon.-Caprolactone-L-lactide copolymer
70524-20-8P, .epsilon.-Caprolactone-lactide copolymer
RL: PRP (Properties); SPN (Synthetic preparation); THU (Therapeutic use);
BIOL (Biological study); PREP (Preparation); USES (Uses)
(process for manufg. polymeric biomedical foams)
- IT 50-99-7, Dextrose, biological studies 57-50-1, Sucrose, biological studies 63-42-3, Lactose 68-04-2, Sodium citrate 69-79-4, Maltose 471-34-1, Calcium carbonate, biological studies 868-18-8, Sodium tartrate, biological studies 2453-03-4D, Trimethylene carbonate, derivs, polymers 7447-40-7, Potassium chloride (KCl), biological studies 7647-14-5, Sodium chloride, biological studies 9005-32-7, **Alginate acid** 9012-36-6, Agarose 10043-52-4, Calcium chloride (CaCl₂), biological studies 10103-46-5, Calcium phosphate 24980-41-4, Poly(.epsilon.-caprolactone) 25248-42-4, Poly[oxy(1-oxo-1,6-hexanediyl)] 26009-03-0, Polyglycolic acid 26023-30-3, Poly[oxy(1-methyl-2-oxo-1,2-ethanediyl)] 26063-00-3, Poly(hydroxybutyrate) 26100-51-6, Polylactic acid 26124-68-5, Polyglycolic acid 26202-08-4, Polyglycolide 26354-94-9, Poly(.delta.-valerolactone) 26499-05-8, Poly[oxy(1-oxo-1,5-pentanediyl)] 26519-61-9, .epsilon.-Caprolactone-p-dioxanone copolymer 26680-10-4, Polylactide 26744-04-7, Poly(.beta.-butyrolactone), sru 28728-97-4, Poly(.gamma.-butyrolactone), SRU 29223-92-5, Poly(p-dioxanone) 31213-03-3, Poly(.gamma.-butyrolactone) 31621-87-1, Poly(p-dioxanone), SRU 31852-84-3, Poly(trimethylene carbonate) 36486-76-7, Poly(.beta.-butyrolactone) 50862-75-4, Poly(oxycarbonyloxy-1,3-propanediyl) 75734-93-9, Glycolide-trimethylene carbonate copolymer 102190-94-3, Poly(hydroxyvaleric acid) 121425-66-9 121425-79-4 129515-24-8 136233-52-8, p-Dioxanone-lactide copolymer 158054-04-7,

Poly(1,4-dioxepan-2-one) 159350-71-7, .epsilon.-Decalactone homopolymer
 159350-72-8, Poly[oxy(1-butyl-6-oxo-1,6-hexanediyl)] 170865-33-5
 175736-55-7 318490-51-6 318490-54-9 318490-55-0
 RL: THU (Therapeutic use); BIOL (Biological study); USES (Uses)
 (process for manufg. polymeric biomedical foams)

L76 ANSWER 26 OF 46 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 2000:898813 HCAPLUS

DOCUMENT NUMBER: 135:157581

TITLE: A hybrid sponge of poly(DL-lactic-co-glycolic acid),
collagen and apatite

AUTHOR(S): Chen, Guoping; Ushida, Takashi; Tateishi, Tetsuya

CORPORATE SOURCE: 3D Tissue Engineering Group, National Institute for
 Advanced Interdisciplinary Research, Tsukuba,
 305-8562, Japan

SOURCE: Key Engineering Materials (2001), 192-

195(Bioceramics), 753-756

CODEN: KEMAEY; ISSN: 1013-9826

PUBLISHER: Trans Tech Publications Ltd.

DOCUMENT TYPE: Journal

LANGUAGE: English

AB Biodegradable poly(DL-lactic-co-glycolic acid), collagen and apatite have
 been hybridized to prep. a three-dimensional **porous**
scaffold for hard tissue engineering. Collagen microsponges were
 first nested in the **pores** of a PLGA sponge to prep.
 PLGA-collagen sponge. And then the surfaces of collagen microsponges were
 deposited with apatite particulates by alternate immersion of
 PLGA-collagen sponge in CaCl₂ and Na₂HPO₄ aq. solns. to prep. the
 PLGA-collagen-apatite hybrid sponge. Observation of the hybrid sponge by
 SEM showed that collagen microsponges with interconnected **pore**
 structures were formed in the **pores** of PLGA sponge and that the
pore surfaces were also covered with collagen. The deposited
 apatite particulates were flake-like and became denser and grew larger
 with repeated alternate immersion cycles. Energy-dispersive spectroscopy
 anal. and X-ray diffraction demonstrated that the deposited particulates
 were hydroxyapatite.

IT 1306-06-5, Apatite

RL: DEV (Device component use); FMU (Formation, unclassified); PRP
 (Properties); THU (Therapeutic use); BIOL (Biological study); FORM
 (Formation, nonpreparative); USES (Uses)

(hybrid sponge of poly(lactic-glycolic acid), **collagen** and
 apatite)

RN 1306-06-5 HCAPLUS

CN Hydroxylapatite (Ca₅(OH)(PO₄)₃) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
HO	1	14280-30-9
O4P	3	14265-44-2
Ca	5	7440-70-2

REFERENCE COUNT: 5 THERE ARE 5 CITED REFERENCES AVAILABLE FOR THIS
 RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

TI A hybrid sponge of poly(DL-lactic-co-glycolic acid), **collagen**
 and apatite

AB Biodegradable poly(DL-lactic-co-glycolic acid), collagen and apatite have
 been hybridized to prep. a three-dimensional **porous**
scaffold for hard tissue engineering. Collagen microsponges were
 first nested in the **pores** of a PLGA sponge to prep.

PLGA-collagen sponge. And then the surfaces of collagen microsponges were deposited with apatite particulates by alternate immersion of PLGA-collagen sponge in CaCl_2 and Na_2HPO_4 aq. solns. to prep. the PLGA-collagen-apatite hybrid sponge. Observation of the hybrid sponge by SEM showed that collagen microsponges with interconnected pore structures were formed in the pores of PLGA sponge and that the pore surfaces were also covered with collagen. The deposited apatite particulates were flake-like and became denser and grew larger with repeated alternate immersion cycles. Energy-dispersive spectroscopy anal. and X-ray diffraction demonstrated that the deposited particulates were hydroxyapatite.

ST sponge polylactide glycolide collagen apatite

IT Animal tissue

(hard; hybrid sponge of poly(lactic-glycolic acid), collagen and apatite)

IT Collagens, biological studies

RL: DEV (Device component use); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); USES (Uses)

(hybrid sponge of poly(lactic-glycolic acid), collagen and apatite)

IT Medical goods

(sponges; hybrid sponge of poly(lactic-glycolic acid), collagen and apatite)

IT 1306-06-5, Apatite

RL: DEV (Device component use); FMU (Formation, unclassified); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); FORM (Formation, nonpreparative); USES (Uses)

(hybrid sponge of poly(lactic-glycolic acid), collagen and apatite)

IT 34346-01-5, Poly(DL-lactic acid-glycolic acid)

RL: DEV (Device component use); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); USES (Uses)

(hybrid sponge of poly(lactic-glycolic acid), collagen and apatite)

IT 7558-79-4, Disodium hydrogen phosphate 10043-52-4, Calcium chloride, reactions

RL: RCT (Reactant); RACT (Reactant or reagent)

(hybrid sponge of poly(lactic-glycolic acid), collagen and apatite)

L76 ANSWER 27 OF 46 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 2000:872248 HCAPLUS

DOCUMENT NUMBER: 134:152596

TITLE: Engineering new bone tissue in vitro on highly porous poly(.alpha.-hydroxyl acids)/hydroxyapatite composite scaffolds

AUTHOR(S): Ma, Peter X.; Zhang, Ruiyun; Xiao, Guozhi; Franceschi, Renny

CORPORATE SOURCE: Department of Biologic and Materials Sciences, Macromolecular Science and Engineering Center, University of Michigan, Ann Arbor, MI, 48109, USA

SOURCE: Journal of Biomedical Materials Research (2000), Volume Date 2001, 54(2), 284-293
CODEN: JBMRBG; ISSN: 0021-9304

PUBLISHER: John Wiley & Sons, Inc.

DOCUMENT TYPE: Journal

LANGUAGE: English

AB Engineering new bone tissue with cells and a synthetic extracellular matrix (scaffolding) represents a new approach for the regeneration of mineralized tissues compared with the transplantation of

bone (autografts or allografts). In the present work, highly porous poly(L-lactic acid) (PLLA) and PLLA/hydroxyapatite (HAP) composite scaffolds were prepd. with a thermally induced phase sepn. technique. The scaffolds were seeded with osteoblastic cells and cultured in vitro. In the pure PLLA scaffolds, the osteoblasts attached primarily on the outer surface of the polymer. In contrast, the osteoblasts penetrated deep into the PLLA/HAP scaffolds and were uniformly distributed. The osteoblast survival percentage in the PLLA/HAP scaffolds was superior to that in the PLLA scaffolds. The osteoblasts proliferated in both types of the scaffolds, but the cell no. was always higher in the PLLA/HAP composite scaffolds during 6 wk of in vitro cultivation. Bone-specific markers (mRNAs encoding bone sialoprotein and osteocalcin) were expressed more abundantly in the PLLA/HAP composite scaffolds than in the PLLA scaffolds. The new tissue increased continuously in the PLLA/HAP composite scaffolds, whereas new tissue formed only near the surface of pure PLLA scaffolds. These results demonstrate that HAP imparts osteocond. and the highly porous PLLA/HAP composite scaffolds are superior to pure PLLA scaffolds for bone tissue engineering.

IT 1306-06-5, Hydroxyapatite 26161-42-2 26811-96-1

, Poly(L-lactic acid)

RL: THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(engineering new bone tissue in vitro on highly porous poly(.alpha.-hydroxyl acids)/hydroxyapatite composite scaffolds)

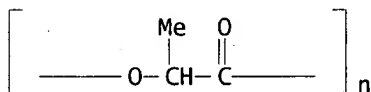
RN 1306-06-5 HCAPLUS

CN Hydroxylapatite (Ca₅(OH)(PO₄)₃) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
HO	1	14280-30-9
O4P	3	14265-44-2
Ca	5	7440-70-2

RN 26161-42-2 HCAPLUS

CN Poly[oxy[(1S)-1-methyl-2-oxo-1,2-ethanediyl]] (9CI) (CA INDEX NAME)



RN 26811-96-1 HCAPLUS

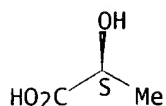
CN Propanoic acid, 2-hydroxy-, (2S)-, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 79-33-4

CMF C3 H6 O3

Absolute stereochemistry. Rotation (+).



REFERENCE COUNT: 61 THERE ARE 61 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

- TI Engineering new bone tissue in vitro on highly **porous** poly(.alpha.-hydroxyl acids)/hydroxyapatite composite **scaffolds**
- CC 63-7 (Pharmaceuticals)
- AB Engineering new bone tissue with cells and a synthetic extracellular matrix (**scaffolding**) represents a new approach for the regeneration of mineralized tissues compared with the transplantation of bone (autografts or allografts). In the present work, highly **porous** poly(L-lactic acid) (PLLA) and PLLA/hydroxyapatite (HAP) composite **scaffolds** were prepd. with a thermally induced phase sepn. technique. The **scaffolds** were seeded with osteoblastic cells and cultured in vitro. In the pure PLLA **scaffolds**, the osteoblasts attached primarily on the outer surface of the polymer. In contrast, the osteoblasts penetrated deep into the PLLA/HAP **scaffolds** and were uniformly distributed. The osteoblast survival percentage in the PLLA/HAP **scaffolds** was superior to that in the PLLA **scaffolds**. The osteoblasts proliferated in both types of the **scaffolds**, but the cell no. was always higher in the PLLA/HAP composite **scaffolds** during 6 wk of in vitro cultivation. Bone-specific markers (mRNAs encoding bone sialoprotein and osteocalcin) were expressed more abundantly in the PLLA/HAP composite **scaffolds** than in the PLLA **scaffolds**. The new tissue increased continuously in the PLLA/HAP composite **scaffolds**, whereas new tissue formed only near the surface of pure PLLA **scaffolds**. These results demonstrate that HAP imparts osteocond. and the highly **porous** PLLA/HAP composite **scaffolds** are superior to pure PLLA **scaffolds** for bone tissue engineering.
- ST polylactide hydroxyapatite composite **scaffold** bone formation; extracellular matrix polylactide hydroxyapatite **scaffold** bone
- IT Prosthetic materials and Prosthetics
(composites, implants, **scaffolds**; engineering new bone tissue in vitro on highly **porous** poly(.alpha.-hydroxyl acids)/hydroxyapatite composite **scaffolds**)
- IT Bone formation
Cell adhesion
Cell proliferation
Extracellular matrix
Osteoblast
Porosity
(engineering new bone tissue in vitro on highly **porous** poly(.alpha.-hydroxyl acids)/hydroxyapatite composite **scaffolds**)
- IT **Polyesters, biological studies**
RL: THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(lactic acid-based; engineering new bone tissue in vitro on highly **porous** poly(.alpha.-hydroxyl acids)/hydroxyapatite composite **scaffolds**)
- IT 1306-06-5, Hydroxyapatite 26161-42-2 26811-96-1
, Poly(L-lactic acid)
RL: THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(engineering new bone tissue in vitro on highly **porous**

poly(.alpha.-hydroxyl acids)/hydroxyapatite composite scaffolds
)

L76 ANSWER 28 OF 46 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 2000:872234 HCAPLUS

DOCUMENT NUMBER: 134:152585

TITLE: Biologically and chemically optimized composites of carbonated apatite and polyglycolide as bone substitution materials

AUTHOR(S): Linhart, Wolfgang; Peters, Fabian; Lehmann, Wolfgang; Schwarz, Karsten; Schilling, Arndt Friedrich; Amling, Michael; Rueger, Johannes Maria; Epple, Matthias

CORPORATE SOURCE: Department of Trauma Surgery, Hamburg University School of Medicine, Hamburg, 20246, Germany

SOURCE: Journal of Biomedical Materials Research (2000), Volume Date 2001, 54(2), 162-171

CODEN: JBMRBG; ISSN: 0021-9304

PUBLISHER: John Wiley & Sons, Inc.

DOCUMENT TYPE: Journal

LANGUAGE: English

AB We report on the development and characterization of a new composite material consisting of amorphous carbonated apatite, $\text{Ca}_5(\text{PO}_4, \text{CO}_3)_3(\text{OH})$, and microstructured poly(hydroxyacetic acid), polyglycolide (PGA). This material is able to keep the pH of a surrounding soln. within the physiol. range (7.2-7.6). This was achieved by chem. fine-tuning of the counterplay between the acidic degrdn. of the polyester and the basic dissoln. of calcium phosphate. Microporous samples with pore sizes of $<1 \mu\text{m}$ and compact samples were prepd. The biol. behavior was assayed in vitro by long-term osteoblast culture. Morphol. and biochem. analyses of cell differentiation revealed excellent biocompatibility, leading to cell attachment, collagen and osteocalcin expression, and mineral deposition. This material could be of use as a bio-degradable bone substitution material and as a scaffold for tissue engineering.

IT 1306-06-5, Hydroxyapatite

RL: THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(carbonate-substituted; biol. and chem. optimized composites of carbonated apatite and polyglycolide as bone substitution materials)

RN 1306-06-5 HCAPLUS

CN Hydroxylapatite ($\text{Ca}_5(\text{OH})(\text{PO}_4)_3$) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
HO	1	14280-30-9
O4P	3	14265-44-2
Ca	5	7440-70-2

REFERENCE COUNT: 49 THERE ARE 49 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

AB We report on the development and characterization of a new composite material consisting of amorphous carbonated apatite, $\text{Ca}_5(\text{PO}_4, \text{CO}_3)_3(\text{OH})$, and microstructured poly(hydroxyacetic acid), polyglycolide (PGA). This material is able to keep the pH of a surrounding soln. within the physiol. range (7.2-7.6). This was achieved by chem. fine-tuning of the counterplay between the acidic degrdn. of the polyester and the basic dissoln. of calcium phosphate. Microporous samples with pore sizes of $<1 \mu\text{m}$ and compact samples were prepd. The biol. behavior was assayed in vitro by long-term osteoblast culture. Morphol. and biochem. analyses of cell differentiation revealed excellent biocompatibility,

leading to cell attachment, collagen and osteocalcin expression, and mineral deposition. This material could be of use as a bio-degradable bone substitution material and as a **scaffold** for tissue engineering.

IT **Collagens**, biological studies

Osteocalcins

RL: BPR (Biological process); BSU (Biological study, unclassified); BIOL (Biological study); PROC (Process)

(biol. and chem. optimized composites of carbonated apatite and polyglycolide as bone substitution materials)

IT **1306-06-5**, Hydroxyapatite

RL: THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(carbonate-substituted; biol. and chem. optimized composites of carbonated apatite and polyglycolide as bone substitution materials)

L76 ANSWER 29 OF 46 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 2000:698613 HCAPLUS

DOCUMENT NUMBER: 134:61472

TITLE: Bioabsorbable **scaffolds** for guided bone regeneration and generation

AUTHOR(S): Kellomaki, M.; Niiranen, H.; Puumanen, K.; Ashammakhi, N.; Waris, T.; Tormala, P.

CORPORATE SOURCE: Institute of Biomaterials, Tampere University of Technology, Tampere, 33101, Finland

SOURCE: Biomaterials (2000), 21(24), 2495-2505

CODEN: BIMADU; ISSN: 0142-9612

PUBLISHER: Elsevier Science Ltd.

DOCUMENT TYPE: Journal

LANGUAGE: English

AB Several different bioabsorbable **scaffolds** designed and manufd. for guided bone regeneration and generation were developed. In order to enhance the bioactivity and potential osteocond. of the **scaffolds**, different bioabsorbable polymers, composites of polymer and bioactive glass, and textured surface structures of the manufd. devices and composites were investigated in in vitro studies and exptl. animal models. Solid, self-reinforced polyglycolide (SR-PGA) rods and self-reinforced poly(L-lactide) (SR-PLLA) rods were successfully used as **scaffolds** for bone formation in muscle by free tibial periosteal grafts in animal expts. In an exptl. maxillary cleft model, a bioabsorbable composite membrane of .vepsiln.-caprolactone and L-lactic acid 50/50 copolymer (PCL/LLA) film and mesh and poly(DL-lactide) (96:4) (PLA96) mesh were found to be suitable materials for guiding bone regeneration in the cleft defect area. The idea of solid **layer** and **porous layer** combined together was also transferred to stiff composite of poly(DL-lactide) (PLA70) plate and PLA96 mesh which structure is introduced. The osteocond. of several different biodegradable composites of polymers and bioactive glass (BG) was shown by apatite formation in vitro. Three composites studied were self-reinforced composite of PLA70 and bioactive glass (SR-(PLA70+BG)), SR-PLA70 plate coated with BG spheres, and Polyactive with BG.

IT **1305-78-8**, Calcium oxide, biological studies **26009-03-0**,

Polyglycolide **26023-30-3**, Poly[oxy(1-methyl-2-oxo-1,2-ethanediyl)] **26161-42-2** **26680-10-4**, Poly(DL-lactide)

33135-50-1, Poly(L-lactide)

RL: DEV (Device component use); THU (Therapeutic use); BIOL (Biological study); USES (Uses)

(bioabsorbable **scaffolds** for guided bone regeneration and generation).

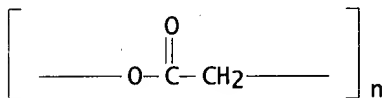
RN **1305-78-8** HCAPLUS

CN Calcium oxide (CaO) (9CI) (CA INDEX NAME)



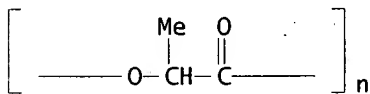
RN 26009-03-0 HCAPLUS

CN Poly[oxy(1-oxo-1,2-ethanediyl)] (9CI) (CA INDEX NAME)



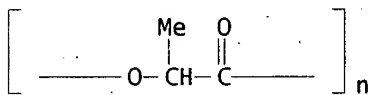
RN 26023-30-3 HCAPLUS

CN Poly[oxy(1-methyl-2-oxo-1,2-ethanediyl)] (8CI, 9CI) (CA INDEX NAME)



RN 26161-42-2 HCAPLUS

CN Poly[oxy[(1S)-1-methyl-2-oxo-1,2-ethanediyl]] (9CI) (CA INDEX NAME)



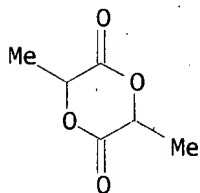
RN 26680-10-4 HCAPLUS

CN 1,4-Dioxane-2,5-dione, 3,6-dimethyl-, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 95-96-5

CMF C6 H8 O4



RN 33135-50-1 HCAPLUS

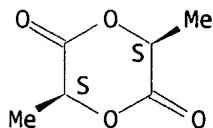
CN 1,4-Dioxane-2,5-dione, 3,6-dimethyl-, (3S,6S)-, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 4511-42-6

CMF C6 H8 O4

Absolute stereochemistry.



REFERENCE COUNT: 75 THERE ARE 75 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

- TI Bioabsorbable **scaffolds** for guided bone regeneration and generation
- CC 63-7 (Pharmaceuticals)
- AB Several different bioabsorbable **scaffolds** designed and manufd. for guided bone regeneration and generation were developed. In order to enhance the bioactivity and potential osteocond. of the **scaffolds**, different bioabsorbable polymers, composites of polymer and bioactive glass, and textured surface structures of the manufd. devices and composites were investigated in in vitro studies and exptl. animal models. Solid, self-reinforced polyglycolide (SR-PGA) rods and self-reinforced poly(L-lactide) (SR-PLLA) rods were successfully used as **scaffolds** for bone formation in muscle by free tibial periosteal grafts in animal expts. In an exptl. maxillary cleft model, a bioabsorbable composite membrane of .vepsiln.-caprolactone and L-lactic acid 50/50 copolymer (PCL/LLA) film and mesh and poly(DL-lactide) (96:4) (PLA96) mesh were found to be suitable materials for guiding bone regeneration in the cleft defect area. The idea of solid layer and porous layer combined together was also transferred to stiff composite of poly(DL-lactide) (PLA70) plate and PLA96 mesh which structure is introduced. The osteocond. of several different biodegradable composites of polymers and bioactive glass (BG) was shown by apatite formation in vitro. Three composites studied were self-reinforced composite of PLA70 and bioactive glass (SR-(PLA70+BG)), SR-PLA70 plate coated with BG spheres, and Polyactive with BG.
- ST bioabsorbable **scaffold** polyester bone regeneration; bioglass composite polyester bioabsorbable bone regeneration
- IT Bone
Bone formation
Extrusion of plastics and rubbers
(bioabsorbable **scaffolds** for guided bone regeneration and generation)
- IT Prosthetic materials and Prosthetics
(bioactive glass; bioabsorbable **scaffolds** for guided bone regeneration and generation)
- IT Phosphosilicate glasses
RL: DEV (Device component use); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(calcium magnesium potassium sodium phosphosilicate; bioabsorbable **scaffolds** for guided bone regeneration and generation)
- IT Polyesters, biological studies
RL: DEV (Device component use); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(caprolactone-based; bioabsorbable **scaffolds** for guided bone regeneration and generation)
- IT Prosthetic materials and Prosthetics
(composites, implants; bioabsorbable **scaffolds** for guided bone regeneration and generation)
- IT Molding f plastics and rubbers
(compression; bioabsorbable **scaffolds** for guided bone

- regeneration and generation)
- IT **Polyesters, biological studies**
 RL: DEV (Device component use); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
 (glycolide-based; bioabsorbable **scaffolds** for guided bone regeneration and generation)
- IT **Prosthetic materials and Prosthetics**
 (implants; bioabsorbable **scaffolds** for guided bone regeneration and generation)
- IT **Polyesters, biological studies**
 RL: DEV (Device component use); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
 (lactide; bioabsorbable **scaffolds** for guided bone regeneration and generation)
- IT **Silicate glasses**
 RL: DEV (Device component use); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
 (sodium silicate, calcium magnesium potassium sodium phosphosilicate; bioabsorbable **scaffolds** for guided bone regeneration and generation)
- IT **Bone**
 (tibia; bioabsorbable **scaffolds** for guided bone regeneration and generation)
- IT **1305-78-8, Calcium oxide, biological studies 1309-48-4, Magnesium oxide (MgO), biological studies 1313-59-3, Sodium oxide (Na₂O), biological studies 1314-56-3, Phosphorus pentoxide, biological studies 7631-86-9, Silica, biological studies 12136-45-7, Potassium oxide (K₂O), biological studies 26009-03-0, Polyglycolide 26023-30-3, Poly[oxy(1-methyl-2-oxo-1,2-ethanediyl)] 26161-42-2 26202-08-4, Polyglycolide 26680-10-4, Poly(DL-lactide) 33135-50-1, Poly(L-lactide) 66844-36-8, .vepsiln.-Caprolactone-L-lactic acid copolymer**
 RL: DEV (Device component use); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
 (bioabsorbable **scaffolds** for guided bone regeneration and generation)

L76 ANSWER 30 OF 46 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 2000:553459 HCAPLUS

DOCUMENT NUMBER: 133:155511

TITLE: Highly-mineralized osteogenic sponge compositions, and uses thereof

INVENTOR(S): McKay, William F.

PATENT ASSIGNEE(S): SDGI Holdings, Inc., USA

SOURCE: PCT Int. Appl., 34 pp.

CODEN: PIXXD2

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: .1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2000045871	A1	20000810	WO 2000-US3043	20000204
W:	AE, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CR, CU, CZ, DE, DK, DM, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM			

RW: GH, GM, KE, LS, MW, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE,
 DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF,
 CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG

EP 1150726 A1 20011107 EP 2000-905989 20000204

R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT,
 IE, SI, LT, LV, FI, RO

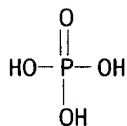
JP 2002536077 T2 20021029 JP 2000-596990 20000204

PRIORITY APPLN. INFO.:

US 1999-118615P P 19990204

WO 2000-US3043 W 20000204

- AB Osteogenic sponge compns. having enhanced osteoinductive properties for use in bone repair are described. The compns. include a quickly resorbable **porous** carrier, a more slowly resorbed mineral **scaffold** and an osteogenic factor, preferably a bone morphogenetic protein. The compns. enable increased osteoinductive activity while retaining a reliable **scaffold** for the formation of new bone at an implant site. Methods for therapeutic use of the compns. are also described.
- IT **10103-46-5**, Calcium phosphate
 RL: DEV (Device component use); PEP (Physical, engineering or chemical process); THU (Therapeutic use); BIOL (Biological study); PROC (Process); USES (Uses)
 (biocompatible ceramics; highly-mineralized osteogenic sponge compns. for repair of bone)
- RN 10103-46-5 HCAPLUS
- CN Phosphoric acid, calcium salt (8CI, 9CI) (CA INDEX NAME)



•x Ca

REFERENCE COUNT: 9 THERE ARE 9 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

- AB Osteogenic sponge compns. having enhanced osteoinductive properties for use in bone repair are described. The compns. include a quickly resorbable **porous** carrier, a more slowly resorbed mineral **scaffold** and an osteogenic factor, preferably a bone morphogenetic protein. The compns. enable increased osteoinductive activity while retaining a reliable **scaffold** for the formation of new bone at an implant site. Methods for therapeutic use of the compns. are also described.
- IT **Ceramics**
 (biocompatible; highly-mineralized osteogenic sponge compns. for repair of bone)
- IT Bone morphogenetic proteins
Collagens, biological studies
 Platelet-derived growth factors
 Steroids, biological studies
 RL: BAC (Biological activity or effector, except adverse); BSU (Biological study, unclassified); DEV (Device component use); PEP (Physical, engineering or chemical process); THU (Therapeutic use); BIOL (Biological study); PROC (Process); USES (Uses)
 (highly-mineralized osteogenic sponge compns. for repair of bone)
- IT **Porosity**

(microporosity; highly-mineralized osteogenic sponge comps. for repair of bone)

IT 10103-46-5, Calcium phosphate

RL: DEV (Device component use); PEP (Physical, engineering or chemical process); THU (Therapeutic use); BIOL (Biological study); PROC (Process); USES (Uses)

(biocompatible ceramics; highly-mineralized osteogenic sponge comps. for repair of bone)

L76 ANSWER 31 OF 46 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 2000:530914 HCAPLUS

DOCUMENT NUMBER: 133:242541

TITLE: New bioactive, degradable composite microspheres as tissue engineering substrates

AUTHOR(S): Qiu, Qing-Qing; Ducheyne, Paul; Ayyaswamy, Portonovo S.

CORPORATE SOURCE: Department of Bioengineering, Center for Bioactive Materials and Tissue Engineering, University of Pennsylvania, Philadelphia, PA, 19104, USA

SOURCE: Journal of Biomedical Materials Research (2000), 52(1), 66-76

CODEN: JBMRBG; ISSN: 0021-9304

PUBLISHER: John Wiley & Sons, Inc.

DOCUMENT TYPE: Journal

LANGUAGE: English

AB Novel bioactive, degradable polymer/glass/ceramic composite microspheres were developed using a solid-in-oil-in-water (s/o/w) emulsion solvent removal method. Modified bioactive glass (MBG) powders were encapsulated into the polylactic acid (PLA) matrix. SEM and energy-dispersive X-ray analyses revealed that the MBG powders were mostly embedded in the polymer matrix, and submicron-size pores were present at the surface. Immersion in simulated physiol. fluid (SPF) was used to evaluate the surface reactivity of the microspheres. The polymeric surface was fully transformed into carbonated calcium hydroxyapatite (c-HA) after 3 wk of immersion. In contrast, PLA microspheres showed no evidence of any calcium phosphate deposition. Ion concn. analyses revealed a decrease in Ca and P concns. and an increase in Si concn. in the SPF immersed with composite microspheres during the 3-wk period. The Ca and P uptake rates decreased after 2 days of incubation. This coincided with the decrease of the Si release rate. These data lend support to the suggestion that the Si released from the MBG powders present in the polymer matrix is involved in the formation of the Ca-P layer. Our results support the concept that these new bioactive, degradable composite microspheres may serve as microcarriers for synthesis of bone and other tissues in vitro and in vivo.

IT 1305-78-8, Calcium oxide, biological studies 1306-06-5,

Calcium hydroxyapatite 26023-30-3, Poly[oxy(1-methyl-2-oxo-1,2-ethanediyl)] 26100-51-6, Polylactic acid

RL: PRP (Properties); THU (Therapeutic use); BIOL (Biological study); USES (Uses)

(new bioactive, degradable composite microspheres as tissue engineering substrates)

RN 1305-78-8 HCAPLUS

CN Calcium oxide (CaO) (9CI) (CA INDEX NAME)

Ca=O

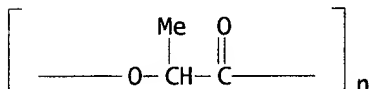
RN 1306-06-5 HCAPLUS

CN Hydroxylapatite (Ca₅(OH)(PO₄)₃) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
HO	1	14280-30-9
O4P	3	14265-44-2
Ca	5	7440-70-2

RN 26023-30-3 HCAPLUS

CN Poly[oxy(1-methyl-2-oxo-1,2-ethanediyl)] (8CI, 9CI) (CA INDEX NAME)



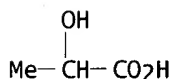
RN 26100-51-6 HCAPLUS

CN Propanoic acid, 2-hydroxy-, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 50-21-5

CMF C3 H6 O3



REFERENCE COUNT: 43 THERE ARE 43 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

CC 63-7 (Pharmaceuticals)

AB Novel bioactive, degradable polymer/glass/ceramic composite microspheres were developed using a solid-in-oil-in-water (s/o/w) emulsion solvent removal method. Modified bioactive glass (MBG) powders were encapsulated into the polylactic acid (PLA) matrix. SEM and energy-dispersive X-ray analyses revealed that the MBG powders were mostly embedded in the polymer matrix, and submicron-size pores were present at the surface. Immersion in simulated physiol. fluid (SPF) was used to evaluate the surface reactivity of the microspheres. The polymeric surface was fully transformed into carbonated calcium hydroxyapatite (c-HA) after 3 wk of immersion. In contrast, PLA microspheres showed no evidence of any calcium phosphate deposition. Ion concn. analyses revealed a decrease in Ca and P concns. and an increase in Si concn. in the SPF immersed with composite microspheres during the 3-wk period. The Ca and P uptake rates decreased after 2 days of incubation. This coincided with the decrease of the Si release rate. These data lend **support** to the suggestion that the Si released from the MBG powders present in the polymer matrix is involved in the formation of the Ca-P layer. Our results **support** the concept that these new bioactive, degradable composite microspheres may serve as microcarriers for synthesis of bone and other tissues in vitro and in vivo.

IT 1305-78-8, Calcium oxide, biological studies 1306-06-5, Calcium hydroxyapatite 1313-59-3, Sodium oxide, biological studies 1314-56-3, Phosphorus oxide, biological studies 26023-30-3, Poly[oxy(1-methyl-2-oxo-1,2-ethanediyl)] 26100-51-6, Polylactic acid

RL: PRP (Properties); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
 (new bioactive, degradable composite microspheres as tissue engineering substrates)

L76 ANSWER 32 OF 46 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 2000:528449 HCAPLUS

DOCUMENT NUMBER: 134:101462

TITLE: Analysis of fiber wetting in SMC formation

AUTHOR(S): Li, Shoujie; Lee, L. James; Rinz, James E.

CORPORATE SOURCE: Department of Chemical Engineering, The Ohio State University, Columbus, OH, 43210, USA

SOURCE: Marketing/Technical Sessions of the Composites Institute's International Composites Expo '99, Cincinnati, OH, United States, May 10-12, 1999 (1999), 1D/1-1D/6. SPI Composites Institute: Harrison, N. Y. CODEN: 69AFIQ

DOCUMENT TYPE: Conference

LANGUAGE: English

AB Defects such as surface porosity and blisters in SMC [sheet molding compd.] can be minimized using vacuum bag molding and in-mold coating, and by optimizing molding conditions, however, fiber pretreatment issues require study. The wettability of fiber bundles and the effect of paste viscosity on the fiber wetting rate were studied. Low viscosity fluids were used as model liqs., i.e., propylene glycol, ethylene glycol, glycerin, and distd. water; five types of glass fiber bundles of different filament diam. were tested. A paste of unsatd. polyester resin contg. CaCO₃ and MgO as thickeners was also used in tests to det. the effect of paste viscosity on fiber wetting rate. Spring-back of fiber bundle stacks at the end of the sheet formation line and how it affects the void content in the SMC were also studied.

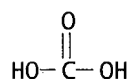
IT 471-34-1, Calcium carbonate (CaCO₃), uses

RL: MOA (Modifier or additive use); USES (Uses)

(thickener; factors affecting wettability of glass fibers by resin during molding as cause of surface defects of sheet molding composites)

RN 471-34-1 HCAPLUS

CN Carbonic acid calcium salt (1:1) (8CI, 9CI) (CA INDEX NAME)



Ca

REFERENCE COUNT: 8 THERE ARE 8 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

AB Defects such as surface porosity and blisters in SMC [sheet molding compd.] can be minimized using vacuum bag molding and in-mold coating, and by optimizing molding conditions, however, fiber pretreatment issues require study. The wettability of fiber bundles and the effect of paste viscosity on the fiber wetting rate were studied. Low viscosity fluids were used as model liqs., i.e., propylene glycol, ethylene glycol, glycerin, and distd. water; five types of glass fiber bundles of different filament diam. were tested. A paste of unsatd. polyester resin contg. CaCO₃ and MgO as thickeners was also used in tests to det. the effect of paste viscosity on fiber wetting rate. Spring-back of fiber bundle stacks

at the end of the sheet formation line and how it affects the void content in the SMC were also studied.

IT **Molding of plastics and rubbers**

Porosity

Surface roughness

Thickening agents

Wettability

(factors affecting wettability of glass fibers by resin during molding as cause of surface defects of sheet molding composites)

IT **Polyesters, processes**

RL: PEP (Physical, engineering or chemical process); PROC (Process)

(unsatd.; factors affecting wettability of glass fibers by resin during molding as cause of surface defects of sheet molding composites)

IT **471-34-1, Calcium carbonate (CaCO₃), uses 1309-48-4, Magnesium oxide (MgO), uses**

RL: MOA (Modifier or additive use); USES (Uses)

(thickener; factors affecting wettability of glass fibers by resin during molding as cause of surface defects of sheet molding composites)

L76 ANSWER 33 OF 46 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 2000:401979 HCAPLUS

DOCUMENT NUMBER: 133:40220

TITLE: Microcellular polymers as cell growth media and novel polymers

INVENTOR(S): Akay, Galip; Downes, Sandra; Price, Victoria Jane

PATENT ASSIGNEE(S): The University of Newcastle, UK

SOURCE: PCT Int. Appl., 55 pp.

CODEN: PIXXD2

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2000034454	A2	20000615	WO 1999-GB4076	19991206
WO 2000034454	A3	20001109		

W: AE, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, DM, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, US, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM

RW: GH, GM, KE, LS, MW, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG

EP 1183328 A2 20020306 EP 1999-958382 19991206

R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO

PRIORITY APPLN. INFO.: GB 1998-26701 A 19981205

WO 1999-GB4076 W 19991206

AB Disclosed is a microcellular polyHIPE polymer scaffold suitable for growth of living matter for biomedical applications, obtainable by polymg. a high internal phase emulsion, comprising a homogeneous cross-linked open cellular material defined by a bulk polymer matrix having a surface and an interface with an internal phase, and having porosity greater than 75 % comprising emulsion derived pores of diam. in the range of 0.1 to 10,000 .mu. and emulsion derived pore interconnects of diam. in the range of up to 100 .mu., wherein the scaffold comprises a plurality of discrete

and/or interpenetrating zones: at the polymer surface; within its bulk matrix; at the interface between polymer and internal phase; and/or between adjacent but distinct **pores** and/or interconnects, characterized by form and dimension of **pore** and interconnect type within each zone, and location of zones wherein adjacent or interpenetrating zones are distinguished by boundaries which may be between or contained within adjacent **pores** and/or interconnects in resp. zones, whereby zones are suitable for regulating positioning and/or morphol. of living matter. Also disclosed are a biol. active system comprising the **scaffold**, an organ support module comprising the **scaffold** and methods and processes for prepn. thereof and use thereof. Bovine chondrocytes were grown in polyHIPE disks.

IT 1306-06-5, Hydroxyapatite

RL: BUU (Biological use, unclassified); DEV (Device component use); MOA (Modifier or additive use); BIOL (Biological study); USES (Uses)

(surface coating with; microcellular polymers as cell growth media and novel polymers)

RN 1306-06-5 HCAPLUS

CN Hydroxylapatite (Ca₅(OH)(PO₄)₃) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
HO	1	14280-30-9
O4P	3	14265-44-2
Ca	5	7440-70-2

AB Disclosed is a microcellular polyHIPE polymer **scaffold** suitable for growth of living matter for biomedical applications, obtainable by polymg. a high internal phase emulsion, comprising a homogeneous cross-linked open cellular material defined by a bulk polymer matrix having a surface and an interface with an internal phase, and having **porosity** greater than 75 % comprising emulsion derived **pores** of diam. in the range of 0.1 to 10,000 .mu. and emulsion derived **pore** interconnects of diam. in the range of up to 100 .mu., wherein the **scaffold** comprises a plurality of discrete and/or interpenetrating zones: at the polymer surface; within its bulk matrix; at the interface between polymer and internal phase; and/or between adjacent but distinct **pores** and/or interconnects, characterized by form and dimension of **pore** and interconnect type within each zone, and location of zones wherein adjacent or interpenetrating zones are distinguished by boundaries which may be between or contained within adjacent **pores** and/or interconnects in resp. zones, whereby zones are suitable for regulating positioning and/or morphol. of living matter. Also disclosed are a biol. active system comprising the **scaffold**, an organ support module comprising the **scaffold** and methods and processes for prepn. thereof and use thereof. Bovine chondrocytes were grown in polyHIPE disks.

ST microcellular polymer cell growth media; polyHIPE polymer **scaffold** cell growth; artificial organ polyHIPE polymer **scaffold**; chondrocyte growth polyHIPE polymer

IT Animal cell

Animal tissue culture

Bacteria (Eubacteria)

Capillary tubes

Cell

Cell fusion

Cell proliferation

Chondrocyte
 Contact lenses
 Culture media
 Electric conductivity
 Fibroblast
 Macrophage
 Microorganism
 Myoblast
 Osteoblast
 Plant cell
 Polymerization
Pore
 Virus

(microcellular polymers as cell growth media and novel polymers)

IT **Collagens**, preparation

RL: BPN (Biosynthetic preparation); BIOL (Biological study); PREP (Preparation)

(type II, prodn. of, by chondrocytes grown on polyHIPE polymers; microcellular polymers as cell growth media and novel polymers)

IT **1306-06-5**, Hydroxyapatite

RL: BUU (Biological use, unclassified); DEV (Device component use); MOA (Modifier or additive use); BIOL (Biological study); USES (Uses)

(surface coating with; microcellular polymers as cell growth media and novel polymers)

L76 ANSWER 34 OF 46 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 2000:301680 HCAPLUS

DOCUMENT NUMBER: 133:313451

TITLE: Rabbit articular cartilage defects treated with homologous cultured chondrocyte on the **porous** hydroxyapatite coated with polylactic acid

AUTHOR(S): Zhang, Chi; Chen, Zhengrong; Lin, Jianping; Zhang, Guangjian

CORPORATE SOURCE: Department of Orthopaedics, Zhongshan Hospital, Shanghai Medical University, Shanghai, 200032, Peop. Rep. China

SOURCE: Shanghai Yike Daxue Xuebao (2000), 27(2), 83-86
 CODEN: SYDXEE; ISSN: 0257-8131

PUBLISHER: Shanghai Yike Daxue Chubanshe

DOCUMENT TYPE: Journal

LANGUAGE: Chinese

AB Chondrocyte were cultured on the **porous** hydroxyapatite coated with polylactic acid to study the repairing of rabbit articular cartilage defects by complex materials engineered chondrocyte. Chondrocyte were planted on the surface of the **porous** hydroxyapatite (HA) coated with polylactic acid (PLA). After 2 wk of culture, the complex of chondrocyte-**scaffold** were transplanted to repair the articular cartilage defect of femoral condyle of rabbit knees. The defects had been made previously and were 5 mm in diam., 2.5 mm in depth, extending down to the calcified zone. Healing of the defects was assessed by gross examn., light microscope and electron microscope. In addn., the collagen content of the normal cartilage of rabbit knees and the healing cartilage after 12 wk of transplantation were detd. **Porous** hydroxyapatite coated with PLA was a kind of excellent **scaffold**, the transplanted chondrocyte could grow well on the **scaffold** and form hyaline cartilage. In the no chondrocyte-transplantation groups, the effects were repaired only by fiber tissues. Meanwhile, the **porous** HA was the temporary substitute of subchondral bone in the period of repairing. The collagen content of healing cartilage after 12 wk of transplantation was 44.69%; and the content of normal cartilage was 54.74%, the difference

was statistically significant. **Porous** hydroxyapatite coated with PLA engineered chondrocyte can repair successfully the cartilage defect of femoral condyle of rabbit knees in the mode of hyaline cartilage. Immaturity of chondrocyte result in that the difference of collagen content is statistically significant.

IT 1306-06-5, Hydroxyapatite

RL: THU (Therapeutic use); BIOL (Biological study); USES (Uses)

(rabbit articular cartilage defects treated with homologous cultured chondrocyte on **porous** hydroxyapatite coated with polylactic acid)

RN 1306-06-5 HCAPLUS

CN Hydroxylapatite (Ca5(OH)(PO4)3) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
HO	1	14280-30-9
O4P	3	14265-44-2
Ca	5	7440-70-2

TI Rabbit articular cartilage defects treated with homologous cultured chondrocyte on the **porous** hydroxyapatite coated with polylactic acid

AB Chondrocyte were cultured on the **porous** hydroxyapatite coated with polylactic acid to study the repairing of rabbit articular cartilage defects by complex materials engineered chondrocyte. Chondrocyte were planted on the surface of the **porous** hydroxyapatite (HA) coated with polylactic acid (PLA). After 2 wk of culture, the complex of chondrocyte-scaffold were transplanted to repair the articular cartilage defect of femoral condyle of rabbit knees. The defects had been made previously and were 5 mm in diam., 2.5 mm in depth, extending down to the calcified zone. Healing of the defects was assessed by gross examn., light microscope and electron microscope. In addn., the collagen content of the normal cartilage of rabbit knees and the healing cartilage after 12 wk of transplantation were detd. **Porous** hydroxyapatite coated with PLA was a kind of excellent **scaffold**, the transplanted chondrocyte could grow well on the **scaffold** and form hyaline cartilage. In the no chondrocyte-transplantation groups, the effects were repaired only by fiber tissues. Meanwhile, the **porous** HA was the temporary substitute of subchondral bone in the period of repairing. The collagen content of healing cartilage after 12 wk of transplantation was 44.69%, and the content of normal cartilage was 54.74%, the difference was statistically significant. **Porous** hydroxyapatite coated with PLA engineered chondrocyte can repair successfully the cartilage defect of femoral condyle of rabbit knees in the mode of hyaline cartilage. Immaturity of chondrocyte result in that the difference of collagen content is statistically significant.

ST articular cartilage defect; homologous cultured chondrocyte **porous** hydroxyapatite coated polylactate

IT Cartilage

(articular, defects; rabbit articular cartilage defects treated with homologous cultured chondrocyte on **porous** hydroxyapatite coated with polylactic acid)

IT Joint, anatomical

(knee; rabbit articular cartilage defects treated with homologous cultured chondrocyte on **porous** hydroxyapatite coated with polylactic acid)

IT Animal tissue culture

Chondrocyte

Rabbit

Transplant and Transplantation

Wound healing

(rabbit articular cartilage defects treated with homologous cultured chondrocyte on **porous** hydroxyapatite coated with polylactic acid)

IT **Collagens**, biological studies

RL: BSU (Biological study, unclassified); BIOL (Biological study)

(rabbit articular cartilage defects treated with homologous cultured chondrocyte on **porous** hydroxyapatite coated with polylactic acid)

IT **1306-06-5**, Hydroxyapatite 26023-30-3, Poly[oxy(1-methyl-2-oxo-1,2-ethanediyl)] 26100-51-6, Polylactic acid

RL: THU (Therapeutic use); BIOL (Biological study); USES (Uses)

(rabbit articular cartilage defects treated with homologous cultured chondrocyte on **porous** hydroxyapatite coated with polylactic acid)

L76 ANSWER 35 OF 46 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 2000:83836 HCAPLUS

DOCUMENT NUMBER: 132:255869

TITLE: Novel Fabrication of Open-Pore Chitin Matrixes

AUTHOR(S): Chow, Kok Sum; Khor, Eugene

CORPORATE SOURCE: Department of Chemistry, National University of Singapore, Singapore, 117543, Singapore

SOURCE: Biomacromolecules (2000), 1(1), 61-67

CODEN: BOMAF6; ISSN: 1525-7797

PUBLISHER: American Chemical Society

DOCUMENT TYPE: Journal

LANGUAGE: English

AB A novel method has been developed to produce open-pore chitin matrixes. Chitin solns. were loaded with calcium carbonate (CaCO₃) crystals and the mixt. cast to form gels. The CaCO₃-chitin gels were submerged in 1 N HCl soln. to produce highly porous matrixes with good water vapor permeability, water uptake profile, and enhanced mech. properties. The open-pore system is obtainable because CaCO₃ loaded into the chitin gel reacts with 1 N HCl soln. to produce gaseous carbon dioxide. Evolution of carbon dioxide during the reaction results in continuous pore structures from the matrix' bulk to surface. When the concn. of CaCO₃ loaded into the chitin gel is controlled, defined homogeneous pores measuring 100-500 and 500-1000 .mu.m, with porosities of .apprxeq.76% and 81%, resp., can be produced.

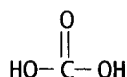
IT **471-34-1**, Calcium carbonate, biological studies

RL: MOA (Modifier or additive use); PEP (Physical, engineering or chemical process); THU (Therapeutic use); BIOL (Biological study); PROC (Process); USES (Uses)

(fabrication of open-pore chitin matrixes)

RN 471-34-1 HCAPLUS

CN Carbonic acid calcium salt (1:1) (8CI, 9CI) (CA INDEX NAME)



● Ca

IT 1398-61-4, Chitin
 RL: PEP (Physical, engineering or chemical process); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PROC (Process); USES (Uses) (fabrication of open-pore chitin matrixes)
 RN 1398-61-4 HCAPLUS
 CN Chitin (8CI, 9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

REFERENCE COUNT: 46 THERE ARE 46 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

TI Novel Fabrication of Open-Pore Chitin Matrixes
 ST chitin matrix open pore
 IT Pore size
 (fabrication of open-pore chitin matrixes)
 IT 124-38-9, Carbon dioxide, formation (nonpreparative)
 RL: FMU (Formation, unclassified); FORM (Formation, nonpreparative) (fabrication of open-pore chitin matrixes)
 IT 471-34-1, Calcium carbonate, biological studies
 RL: MOA (Modifier or additive use); PEP (Physical, engineering or chemical process); THU (Therapeutic use); BIOL (Biological study); PROC (Process); USES (Uses) (fabrication of open-pore chitin matrixes)
 IT 1398-61-4, Chitin
 RL: PEP (Physical, engineering or chemical process); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PROC (Process); USES (Uses) (fabrication of open-pore chitin matrixes)

L76 ANSWER 36 OF 46 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1999:510499 HCAPLUS

DOCUMENT NUMBER: 131:174892

TITLE: Functionally graded bioceramics

AUTHOR(S): Pompe, W.; Lampenscherf, S.; Rossler, S.; Scharnweber, D.; Weis, K.; Worch, H.; Hofinger, J.

CORPORATE SOURCE: Department Materials Science, Dresden Univ. Technology, Dresden, D-01069, Germany

SOURCE: Materials Science Forum (1999), 308-311(Functionally Graded Materials 1998), 325-330
 CODEN: MSFOEP; ISSN: 0255-5476

PUBLISHER: Trans Tech Publications Ltd.

DOCUMENT TYPE: Journal; General Review

LANGUAGE: English

AB A review is given with 8 refs. on graded hydroxyapatite (HAP)/collagen I composites with osteoconductive properties as coatings for Ti implants or as bone replacements. Functionally graded multiphase Ca phosphate coatings can be applied for biocompatible coatings of metallic implants. Electrochem. assisted TiO₂-HAP-amorphous Ca phosphate coatings have high interface strength, bone-like compliance, and biocompatibility. The integration of collagen I in electrochem. assisted TiO₂-HAP coatings resulted in osteoconductive behavior. Osteoconductive bone replacements can be manufd. from liq. HAP-collagen precursors with different routes for graded micro- and macroporous structures.

IT 1306-06-5, Hydroxyapatite
 RL: PEP (Physical, engineering or chemical process); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PROC (Process); USES (Uses) (hydroxyapatite/collagen I composite; functionally graded bioceramics)
 RN 1306-06-5 HCAPLUS
 CN Hydroxylapatite (Ca₅(OH)(PO₄)₃) (9CI) (CA INDEX NAME)

Component	Ratio	Component
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		Registry Number
HO	1	14280-30-9
O4P	3	14265-44-2
Ca	5	7440-70-2

REFERENCE COUNT: 8 THERE ARE 8 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

ST review bioceramic hydroxyapatite titanium **collagen**; calcium phosphate titanium hydroxyapatite bioceramic review

IT **Ceramics**
(biocompatible; functionally graded bioceramics)

IT Coating materials
Pore size distribution
(functionally graded bioceramics)

IT **Collagens**, biological studies
RL: PEP (Physical, engineering or chemical process); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PROC (Process); USES (Uses)
(type I, hydroxyapatite/**collagen** I composite; functionally graded bioceramics)

IT **1306-06-5**, Hydroxyapatite
RL: PEP (Physical, engineering or chemical process); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PROC (Process); USES (Uses)
(hydroxyapatite/**collagen** I composite; functionally graded bioceramics)

L76 ANSWER 37 OF 46 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1999:392597 HCAPLUS

DOCUMENT NUMBER: 131:49508

TITLE: Formation of human bone in vivo using ceramic powder and human marrow stromal fibroblasts

INVENTOR(S): Robey, Pamela Gehron; Bianco, Paolo; Kuznetsov, Sergei; Rowe, David; Krebsbach, Paul; Mankani, Mahesh H.

PATENT ASSIGNEE(S): United States Dept. of Health and Human Services, USA
SOURCE: U.S., 10 pp.

CODEN: USXXAM

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 5914121	A	19990622	US 1997-798715	19970212
PRIORITY APPLN. INFO.:			US 1997-798715	19970212

AB An compn. suitable for implantation for stimulating human bone formation is described. Human marrow stromal fibroblasts (MSFs) are isolated, expanded in culture, combined with ceramic powder (hydroxyapatite (HA)/tricalcium phosphate (TCP)) delivery vehicles with or without fibrin glue and implanted into a mammal. This protocol results in the formation of self-maintained human bone which **supports** hematopoiesis. This model system can be used to screen compds. which inhibit or stimulate bone formation. The MSF delivery vehicles can be implanted into humans to augment bone implants or to repair bone defects. Two weeks after transplantation of mouse MSFs in HA/TCP blocks, newly formed bone was obsd. in vehicle **pores** at the periphery of the transplants; most of the internal **pores** contained fibrous tissue and vascular structure. After 4-5 wk, many **pores** were filled and new bone showed osteocytes and osteoblastic layer. After 6-10 wk,

transplants showed areas of vehicle resorption and bone remodeling.
Larger pores were layered with lamellar-like bone
surrounding reticular and fat stroma with abundant hematopoietic tissue.

IT 1306-06-5, Hydroxyapatite 7758-87-4, Tricalcium
phosphate 26161-42-2 26811-96-1, Poly(L-lactic acid)
RL: DEV (Device component use); THU (Therapeutic use); BIOL (Biological
study); USES (Uses)

(implantable ceramic powder compns. contg. human marrow stromal
fibroblasts for bone formation)

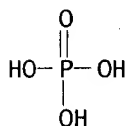
RN 1306-06-5 HCAPLUS

CN Hydroxylapatite (Ca₅(OH)(PO₄)₃) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
HO	1	14280-30-9
O4P	3	14265-44-2
Ca	5	7440-70-2

RN 7758-87-4 HCAPLUS

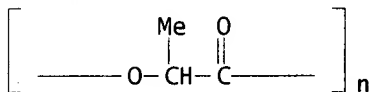
CN Phosphoric acid, calcium salt (2:3) (8CI, 9CI) (CA INDEX NAME)



3/2 Ca

RN 26161-42-2 HCAPLUS

CN Poly[oxy[(1S)-1-methyl-2-oxo-1,2-ethanediyl]] (9CI) (CA INDEX NAME)



RN 26811-96-1 HCAPLUS

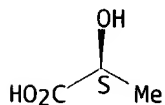
CN Propanoic acid, 2-hydroxy-, (2S)-, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 79-33-4

CMF C3 H6 O3

Absolute stereochemistry. Rotation (+).



REFERENCE COUNT:

30

THERE ARE 30 CITED REFERENCES AVAILABLE FOR THIS
RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

- CC 63-7 (Pharmaceuticals)
Section cross-reference(s): 1
- AB An compn. suitable for implantation for stimulating human bone formation is described. Human marrow stromal fibroblasts (MSFs) are isolated, expanded in culture, combined with ceramic powder (hydroxyapatite (HA)/tricalcium phosphate (TCP)) delivery vehicles with or without fibrin glue and implanted into a mammal. This protocol results in the formation of self-maintained human bone which **supports** hematopoiesis. This model system can be used to screen compds. which inhibit or stimulate bone formation. The MSF delivery vehicles can be implanted into humans to augment bone implants or to repair bone defects. Two weeks after transplantation of mouse MSFs in HA/TCP blocks, newly formed bone was obsd. in vehicle **pores** at the periphery of the transplants; most of the internal **pores** contained fibrous tissue and vascular structure. After 4-5 wk, many **pores** were filled and new bone showed osteocytes and osteoblastic layer. After 6-10 wk, transplants showed areas of vehicle resorption and bone remodeling. Larger **pores** were **layered** with lamellar-like bone surrounding reticular and fat stroma with abundant hematopoietic tissue.
- IT **Collagens, biological studies**
RL: DEV (Device component use); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(implantable ceramic powder compns. contg. human marrow stromal fibroblasts for bone formation)
- IT Hematopoiesis
(implantable ceramic powder compns. contg. human marrow stromal fibroblasts for bone formation which **supports** hematopoiesis)
- IT **Polyesters, biological studies**
RL: DEV (Device component use); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(lactic acid-based; implantable ceramic powder compns. contg. human marrow stromal fibroblasts for bone formation)
- IT Vinyl compounds, biological studies
RL: DEV (Device component use); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(polymers, **sponges**; implantable ceramic powder compns. contg. human marrow stromal fibroblasts for bone formation)
- IT **Ceramics**
(prosthetic implants; implantable ceramic powder compns. contg. human marrow stromal fibroblasts for bone formation)
- IT **Collagens, biological studies**
RL: DEV (Device component use); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(type I, fibrillar; implantable ceramic powder compns. contg. human marrow stromal fibroblasts for bone formation)
- IT **Collagen fibers**
RL: DEV (Device component use); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(type I; implantable ceramic powder compns. contg. human marrow stromal fibroblasts for bone formation)
- IT 1306-06-5, Hydroxyapatite 7758-87-4, Tricalcium phosphate 26161-42-2 26811-96-1, Poly(L-lactic acid)
RL: DEV (Device component use); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(implantable ceramic powder compns. contg. human marrow stromal fibroblasts for bone formation)

TITLE: Novel three dimensional biodegradable
scaffolds for bone tissue engineering
 AUTHOR(S): Marra, Kacey G.; Campbell, Phil G.; Dimilla, Paul A.;
 Kumta, Prashant N.; Mooney, Mark P.; Szem, Jeffrey W.;
 Weiss, Lee E.
 CORPORATE SOURCE: Institute for Complex Engineered Systems, Carnegie
 Mellon University (CMU), Pittsburgh, PA, USA
 SOURCE: Materials Research Society Symposium Proceedings
 (1999), 550(Biomedical Materials--Drug Delivery,
 Implants and Tissue Engineering), 155-160
 CODEN: MRSPDH; ISSN: 0272-9172
 PUBLISHER: Materials Research Society
 DOCUMENT TYPE: Journal
 LANGUAGE: English

AB We constructed osteogenic **scaffolds** using solid free form
 fabrication techniques. Blends of biodegradable polymers,
 polycaprolactone and poly(DL-lactic-co-glycolic acid), were examd. as
scaffolds for applications in bone tissue engineering.
 Hydroxyapatite granules were incorporated into the blends and
porous disks were prepd. Mech. properties and degradn. rates of
 the composites were detd. The disks were seeded with rabbit bone marrow
 or cultured bone marrow stromal cells and in vitro studies were conducted.
 Electron microscopy and histol. anal. revealed an osteogenic composite
 that **supports** bone cell growth not only on the surface but
 throughout the 1-mm thick **scaffold** as well. Seeded and unseeded
 disks were mech. assembled in **layers** and implanted in a rabbit
 rectus abdominis muscle. Bone growth was evident after eight weeks in
 vivo. Electron microscopy and histol. analyses indicate vascularization
 and primitive bone formation throughout the seeded composite, and also a
 "fusion" of the **layers** to form a single, solid construct.
 Finally, we have begun to incorporate the growth factor IGF-I into the
scaffold to enhance osteogenicity and/or as an alternative to cell
 seeding.

IT **24980-41-4**, Polycaprolactone **25248-42-4**,
 Polycaprolactone **34346-01-5**, Glycolic acid-lactic acid copolymer
 RL: POF (Polymer in formulation); THU (Therapeutic use); BIOL (Biological
 study); USES (Uses)

(3-dimensional biodegradable polymers for bone tissue engineering)

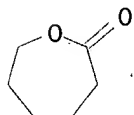
RN 24980-41-4 HCAPLUS

CN 2-Oxepanone, homopolymer (9CI) (CA INDEX NAME)

CM 1

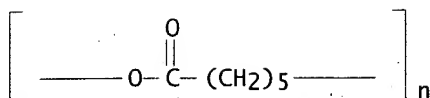
CRN 502-44-3

CMF C6 H10 O2



RN 25248-42-4 HCAPLUS

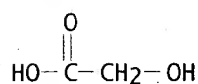
CN Poly[oxy(1-oxo-1,6-hexanediyl)] (9CI) (CA INDEX NAME)



RN 34346-01-5 HCAPLUS
 CN Propanoic acid, 2-hydroxy-, polymer with hydroxyacetic acid (9CI) (CA INDEX NAME)

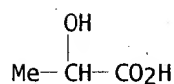
CM 1

CRN 79-14-1
 CMF C2 H4 O3



CM 2

CRN 50-21-5
 CMF C3 H6 O3



IT 1306-06-5, Hydroxylapatite
 RL: THU (Therapeutic use); BIOL (Biological study); USES (Uses)
 (3-dimensional biodegradable polymers for bone tissue engineering)
 RN 1306-06-5 HCAPLUS
 CN Hydroxylapatite (Ca5(OH).(PO4)3) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
HO	1	14280-30-9
O4P	3	14265-44-2
Ca	5	7440-70-2

REFERENCE COUNT: 10 THERE ARE 10 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

TI Novel three dimensional biodegradable **scaffolds** for bone tissue engineering
 CC 63-7 (Pharmaceuticals)
 AB We constructed osteogenic **scaffolds** using solid free form fabrication techniques. Blends of biodegradable polymers, polycaprolactone and poly(DL-lactic-co-glycolic acid), were examd. as **scaffolds** for applications in bone tissue engineering. Hydroxyapatite granules were incorporated into the blends and **porous** disks were prep'd. Mech. properties and degrdn. rates of the composites were det'd. The disks were seeded with rabbit bone marrow or cultured bone marrow stromal cells and in vitro studies were conducted.

Electron microscopy and histol. anal. revealed an osteogenic composite that **supports** bone cell growth not only on the surface but throughout the 1-mm thick **scaffold** as well. Seeded and unseeded disks were mech. assembled in **layers** and implanted in a rabbit rectus abdominis muscle. Bone growth was evident after eight weeks in vivo. Electron microscopy and histol. analyses indicate vascularization and primitive bone formation throughout the seeded composite, and also a "fusion" of the **layers** to form a single, solid construct. Finally, we have begun to incorporate the growth factor IGF-I into the **scaffold** to enhance osteogenicity and/or as an alternative to cell seeding.

IT **Polyesters, biological studies**

RL: POF (Polymer in formulation); THU (Therapeutic use); BIOL (Biological study); USES (Uses)

(caprolactone-based; 3-dimensional biodegradable polymers for bone tissue engineering)

IT **Polyesters, biological studies**

RL: POF (Polymer in formulation); THU (Therapeutic use); BIOL (Biological study); USES (Uses)

(hydroxycarboxylic acid-based; 3-dimensional biodegradable polymers for bone tissue engineering)

IT **24980-41-4, Polycaprolactone 25248-42-4,**

Polycaprolactone **34346-01-5**, Glycolic acid-lactic acid copolymer

RL: POF (Polymer in formulation); THU (Therapeutic use); BIOL (Biological study); USES (Uses)

(3-dimensional biodegradable polymers for bone tissue engineering)

IT **1306-06-5, Hydroxylapatite**

RL: THU (Therapeutic use); BIOL (Biological study); USES (Uses)

(3-dimensional biodegradable polymers for bone tissue engineering)

L76 ANSWER 39 OF 46 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1999:184163 HCAPLUS

DOCUMENT NUMBER: 130:227736

TITLE: Biodegradable composites for implants

INVENTOR(S): Corden, Thomas Joseph; Downes, Sandra; Fisher, Sheila Eunice; Jones, Ivor Arthur; Rudd, Christopher Douglas

PATENT ASSIGNEE(S): University of Nottingham, UK

SOURCE: PCT Int. Appl., 55 pp.

CODEN: PIXXD2

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 9911297	A2	19990311	WO 1998-GB2399	19980819
WO 9911297	A3	19990610		
W:	AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GE, GH, GM, HR, HU, ID, IL, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, US, UZ, VN, YU, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM			
RW:	GH, GM, KE, LS, MW, SD, SZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, CA, GN, GW, ML, MR, NE, SN, TD, TG			
CA 2300949	AA	19990311	CA 1998-2300949	19980819
AU 9887382	A1	19990322	AU 1998-87382	19980819
EP 1005379	A1	20000607	EP 1998-938777	19980819
R:	AT, BE, CH, DE, DK, ES, FR, GB, IT, LI, NL, SE, PT, FI			

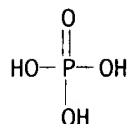
JP 2001514049 T2 20010911 JP 2000-508398 19980819
 PRIORITY APPLN. INFO.: GB 1997-17433 A 19970819
 WO 1998-GB2399 W 19980819

AB Disclosed is a fully biodegradable fiber-reinforced composite adapted for use as a medical implant which is shaped and processed by means of a resin reaction injection transfer molding process adapted for predetermining shape, phys. properties and degrdn. profile. Also disclosed are a shaped preform and/or compn. for prepn. of the shaped composite, a process for the prodn. of the shaped composite comprising obtaining a shaped preform and impregnating with resin with simultaneous processing thereof, and a shaped composite comprising thermoplastic matrix and fibers adapted for use as a medical implant. It is characterized by a differential degrdn. of matrix with respect to fibers adapted to degrade via an intermediate shaped structure comprising residual porous matrix or residual fiber form resp. and selection of composite is made for primary growth of a preferred cell type, throughout voids created by degraded matrix or fiber resp., according to the desired healing or reconstruction locus, the shaped composites for use as an implant in surgical reconstruction, preferably for use in reconstructive surgery of bone or in reconstructive surgery of cartilage and/or meniscus selected from cranial, maxillofacial and orthopedic surgery for the purpose of fixation, augmentation and filling in of defects. A method for the prodn. of a shaped product comprises prepn. of set sizes, shapes and configurations, e.g. plates, screws, rivets and other fixation devices according to a 3-dimensional template wherein the template is obtained by means of prepg. 3-dimensional image of a selected feature or area for implant, generating a mold as hereinbefore defined, selecting fiber and matrix for prepn. of a composite, prepg. a fiber preform by introducing fiber into the mold in an effective amt. and arrangement, injecting matrix and catalyst and processing thereof with subsequent removal of the mold.

IT 7758-87-4, .beta.-Tricalcium phosphate
 RL: THU (Therapeutic use); BIOL (Biological study); USES (Uses)
 (fibers; manuf. of fiber-reinforced biodegradable composites for implants by resin reaction injection transfer molding process)

RN 7758-87-4 HCAPLUS

CN Phosphoric acid, calcium salt (2:3) (8CI, 9CI) (CA INDEX NAME)



3/2 Ca

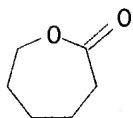
IT 24980-41-4, Polycaprolactone 25248-42-4,
 Polycaprolactone 26009-03-0, Polyglycolic acid
 26023-30-3, Poly[oxy(1-methyl-2-oxo-1,2-ethanediyl)]
 26063-00-3, Polyhydroxybutyrate 26100-51-6, Polylactic
 acid 26124-68-5, Polyglycolic acid 26161-42-2
 26680-10-4, Polylactide 26744-04-7 26780-50-7,
 Lactide-glycolide copolymer 26811-96-1, Poly(L-lactic acid)
 30846-39-0, L-Lactide-glycolide copolymer 33135-50-1,
 Poly(L-lactide)

RL: THU (Therapeutic use); BIOL (Biological study); USES (Uses)
 (matrix; manuf. of fiber-reinforced biodegradable composites for implants by resin reaction injection transfer molding process)

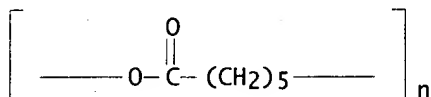
RN 24980-41-4 HCAPLUS
 CN 2-Oxepanone, homopolymer (9CI) (CA INDEX NAME)

CM 1

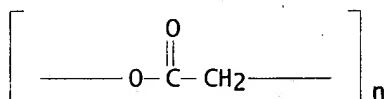
CRN 502-44-3
 CMF C6 H10 O2



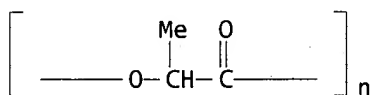
RN 25248-42-4 HCAPLUS
 CN Poly[oxy(1-oxo-1,6-hexanediyl)] (9CI) (CA INDEX NAME)



RN 26009-03-0 HCAPLUS
 CN Poly[oxy(1-oxo-1,2-ethanediyl)] (9CI) (CA INDEX NAME)



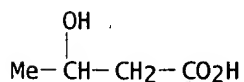
RN 26023-30-3 HCAPLUS
 CN Poly[oxy(1-methyl-2-oxo-1,2-ethanediyl)] (8CI, 9CI) (CA INDEX NAME)



RN 26063-00-3 HCAPLUS
 CN Butanoic acid, 3-hydroxy-, homopolymer (9CI) (CA INDEX NAME)

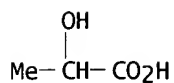
CM 1

CRN 300-85-6
 CMF C4 H8 O3

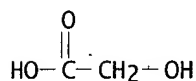
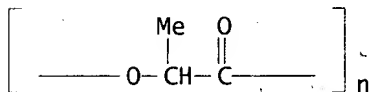


RN 26100-51-6 HCAPLUS
 CN Propanoic acid, 2-hydroxy-, homopolymer (9CI) (CA INDEX NAME)

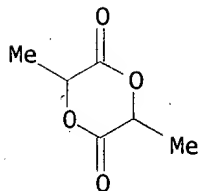
CM 1

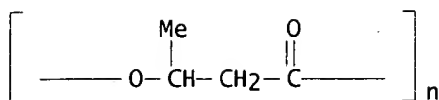
CRN 50-21-5
CMF C3 H6 O3RN 26124-68-5 HCAPLUS
CN Acetic acid, hydroxy-, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 79-14-1
CMF C2 H4 O3RN 26161-42-2 HCAPLUS
CN Poly[oxy[(1S)-1-methyl-2-oxo-1,2-ethanediyl]] (9CI) (CA INDEX NAME)RN 26680-10-4 HCAPLUS
CN 1,4-Dioxane-2,5-dione, 3,6-dimethyl-, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 95-96-5
CMF C6 H8 O4RN 26744-04-7 HCAPLUS
CN Poly[oxy(1-methyl-3-oxo-1,3-propanediyl)] (9CI) (CA INDEX NAME)



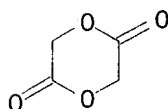
RN 26780-50-7 HCAPLUS

CN 1,4-Dioxane-2,5-dione, 3,6-dimethyl-, polymer with 1,4-dioxane-2,5-dione (9CI) (CA INDEX NAME)

CM 1

CRN 502-97-6

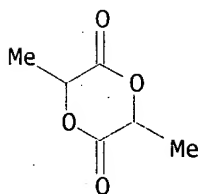
CMF C4 H4 O4



CM 2

CRN 95-96-5

CMF C6 H8 O4



RN 26811-96-1 HCAPLUS

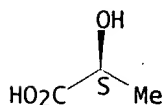
CN Propanoic acid, 2-hydroxy-, (2S)-, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 79-33-4

CMF C3 H6 O3

Absolute stereochemistry. Rotation (+).



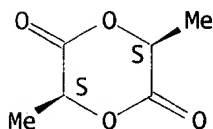
RN 30846-39-0 HCAPLUS

CN 1,4-Dioxane-2,5-dione, 3,6-dimethyl-, (3S,6S)-, polymer with 1,4-dioxane-2,5-dione (9CI) (CA INDEX NAME)

CM 1

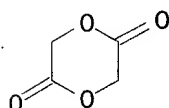
CRN 4511-42-6
CMF C6 H8 O4

Absolute stereochemistry.



CM 2

CRN 502-97-6
CMF C4 H4 O4

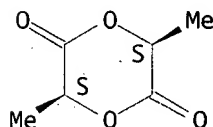


RN 33135-50-1 HCAPLUS
CN 1,4-Dioxane-2,5-dione, 3,6-dimethyl-, (3S,6S)-, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 4511-42-6
CMF C6 H8 O4

Absolute stereochemistry.



AB Disclosed is a fully biodegradable fiber-reinforced composite adapted for use as a medical implant which is shaped and processed by means of a resin reaction injection transfer molding process adapted for predetermining shape, phys. properties and degrdn. profile. Also disclosed are a shaped preform and/or compn. for prepn. of the shaped composite, a process for the prodn. of the shaped composite comprising obtaining a shaped preform and impregnating with resin with simultaneous processing thereof, and a shaped composite comprising thermoplastic matrix and fibers adapted for use as a medical implant. It is characterized by a differential degrdn. of matrix with respect to fibers adapted to degrade via an intermediate shaped structure comprising residual porous matrix or residual fiber form resp. and selection of composite is made for primary growth of a preferred cell type, throughout voids created by degraded matrix or fiber resp., according to the desired healing or reconstruction locus, the shaped composites for use as an implant in surgical reconstruction, preferably for use in reconstructive surgery of bone or in reconstructive

surgery of cartilage and/or meniscus selected from cranial, maxillofacial and orthopedic surgery for the purpose of fixation, augmentation and filling in of defects. A method for the prodn. of a shaped product comprises prepn. of set sizes, shapes and configurations, e.g. plates, screws, rivets and other fixation devices according to a 3-dimensional template wherein the template is obtained by means of prepg. 3-dimensional image of a selected feature or area for implant, generating a mold as hereinbefore defined, selecting fiber and matrix for prepn. of a composite, prepg. a fiber preform by introducing fiber into the mold in an effective amt. and arrangement; injecting matrix and catalyst and processing thereof with subsequent removal of the mold.

IT Fluoropolymers, biological studies

Polyamides, biological studies

Polyanhydrides

Polycarbonates, biological studies

Polyesters, biological studies

Polyolefins

Polysiloxanes, biological studies

Polyurethanes, biological studies

RL: THU (Therapeutic use); BIOL (Biological study); USES (Uses)

(matrix; manuf. of fiber-reinforced biodegradable composites for implants by resin reaction injection transfer molding process)

IT **Polyesters, biological studies**

Polyesters, studies

RL: THU (Therapeutic use); BIOL (Biological study); USES (Uses)

(polyamide-, matrix; manuf. of fiber-reinforced biodegradable composites for implants by resin reaction injection transfer molding process)

IT **Molding of plastics and rubbers**

(transfer; manuf. of fiber-reinforced biodegradable composites for implants by resin reaction injection transfer molding process)

IT 7758-87-4, .beta.-Tricalcium phosphate 15551-60-7 53801-86-8,

Calcium metaphosphate

RL: THU (Therapeutic use); BIOL (Biological study); USES (Uses)

(fibers; manuf. of fiber-reinforced biodegradable composites for implants by resin reaction injection transfer molding process)

IT 9002-84-0, Teflon 24980-41-4, Polycaprolactone

25248-42-4, Polycaprolactone 26009-03-0, Polyglycolic acid 26023-30-3, Poly[oxy(1-methyl-2-oxo-1,2-ethanediyl)]

26063-00-3, Polyhydroxybutyrate 26100-51-6, Polylactic

acid 26124-68-5, Polyglycolic acid 26161-42-2

26680-10-4, Polylactide 26744-04-7 26780-50-7,

Lactide-glycolide copolymer 26811-96-1, Poly(L-lactic acid)

27083-66-5, Polypropylene fumarate 30846-39-0,

L-Lactide-glycolide copolymer 31852-84-3, Polytrimethylenecarbonate

33135-50-1, Poly(L-lactide) 50862-75-4, Poly(oxycarbonyloxy-1,3-propanediyl) 83120-66-5

RL: THU (Therapeutic use); BIOL (Biological study); USES (Uses)

(matrix; manuf. of fiber-reinforced biodegradable composites for implants by resin reaction injection transfer molding process)

L76 ANSWER 40 OF 46 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1999:57665 HCAPLUS

DOCUMENT NUMBER: 130:227697

TITLE: Poly(.alpha.-hydroxy acids)/hydroxyapatite
porous composites for bone-tissue engineering.

I. Preparation and morphology

AUTHOR(S): Zhang, Ruiyun; Ma, Peter X.

CORPORATE SOURCE: Department of Biologic and Materials Sciences, The
University of Michigan, Ann Arbor, MI, 48109-1078, USA

SOURCE: Journal of Biomedical Materials Research (1999),
44(4), 446-455
CODEN: JBMRBG; ISSN: 0021-9304
PUBLISHER: John Wiley & Sons, Inc.
DOCUMENT TYPE: Journal
LANGUAGE: English

AB Tissue engineering has shown great promise for creating biol. alternatives for implants. In this approach, **scaffolding** plays a pivotal role. Hydroxyapatite mimics the natural bone mineral and has shown good bone-bonding properties. This paper describes the prepn. and morphologies of 3-dimensional **porous** composites from poly(L-lactic acid) (PLLA) or poly(D,L-lactic acid-coglycolic acid) (PLGA) soln. and hydroxyapatite (HAP). A thermally induced **phase sepn.** technique was used to create the highly **porous** composite **scaffolds** for bone-tissue engineering. Freeze drying of the **phase-sepd.** polymer/HAP/solvent mixts. produced hard and tough foams with a co-continuous structure of interconnected **pores** and a polymer/HAP composite skeleton. The microstructure of the **pores** and the walls was controlled by varying the polymer concn., HAP content, quenching temp., polymer, and solvent utilized. The **porosity** increased with decreasing polymer concn. and HAP content. Foams with **porosity** as high as 95% were achieved. **Pore** sizes ranging from several microns to a few hundred microns were obtained. The composite foams showed a significant improvement in mech. properties over pure polymer foams. They are promising **scaffolds** for bone-tissue engineering.

IT 1306-06-5, Hydroxyapatite 26161-42-2 26811-96-1
, Poly(L-lactic acid) 34346-01-5, Glycolic acid-lactic acid
copolymer

RL: THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(prepn. and morphol. of poly(hydroxy acid)/hydroxyapatite composites
for artificial bone)

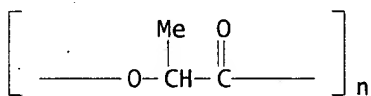
RN 1306-06-5 HCAPLUS

CN Hydroxylapatite (Ca5(OH)(PO4)3) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
HO	1	14280-30-9
O4P	3	14265-44-2
Ca	5	7440-70-2

RN 26161-42-2 HCAPLUS

CN Poly[oxy[(1S)-1-methyl-2-oxo-1,2-ethanediyl]] (9CI) (CA INDEX NAME)



RN 26811-96-1 HCAPLUS

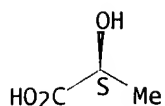
CN Propanoic acid, 2-hydroxy-, (2S)-, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 79-33-4

CMF C3 H6 O3

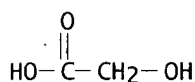
Absolute stereochemistry. Rotation (+).



RN 34346-01-5 HCAPLUS
 CN Propanoic acid, 2-hydroxy-, polymer with hydroxyacetic acid (9CI) (CA
 INDEX NAME)

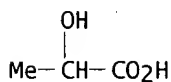
CM 1

CRN 79-14-1
 CMF C2 H4 O3



CM 2

CRN 50-21-5
 CMF C3 H6 O3



REFERENCE COUNT: 34 THERE ARE 34 CITED REFERENCES AVAILABLE FOR THIS
 RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

TI Poly(.alpha.-hydroxy acids)/hydroxyapatite **porous** composites for
 bone-tissue engineering. I. Preparation and morphology

CC 63-7 (Pharmaceuticals)

AB Tissue engineering has shown great promise for creating biol. alternatives
 for implants. In this approach, **scaffolding** plays a pivotal
 role. Hydroxyapatite mimics the natural bone mineral and has shown good
 bone-bonding properties. This paper describes the prepn. and morphologies
 of 3-dimensional **porous** composites from poly(L-lactic acid)
 (PLLA) or poly(D,L-lactic acid-co-glycolic acid) (PLGA) soln. and
 hydroxyapatite (HAP). A thermally induced **phase** sepn. technique
 was used to create the highly **porous** composite **scaffolds**
 for bone-tissue engineering. Freeze drying of the **phase-sepd.**
 polymer/HAP/solvent mixts. produced hard and tough foams with a
 co-continuous structure of interconnected **pores** and a
 polymer/HAP composite skeleton. The microstructure of the **pores**
 and the walls was controlled by varying the polymer concn., HAP content,
 quenching temp., polymer, and solvent utilized. The **porosity**
 increased with decreasing polymer concn. and HAP content. Foams with
porosity as high as 95% were achieved. **Pore** sizes
 ranging from several microns to a few hundred microns were obtained. The
 composite foams showed a significant improvement in mech. properties over
 pure polymer foams. They are promising **scaffolds** for
 bone-tissue engineering.

IT Polyesters, biological studies

RL: THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(hydroxycarboxylic acid-based; prepn. and morphol. of poly(hydroxy acid)/hydroxyapatite composites for artificial bone)

IT **Polyesters, biological studies**

RL: THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(lactic acid-based; prepn. and morphol. of poly(hydroxy acid)/hydroxyapatite composites for artificial bone)

IT Bone

Compression

Density

Microstructure

Polymer morphology

Pore size distribution

Porosity

Yield strength

(prepn. and morphol. of poly(hydroxy acid)/hydroxyapatite composites for artificial bone)

IT **1306-06-5, Hydroxyapatite 26161-42-2 26811-96-1**

, Poly(L-lactic acid) **34346-01-5**, Glycolic acid-lactic acid copolymer

RL: THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(prepn. and morphol. of poly(hydroxy acid)/hydroxyapatite composites for artificial bone)

L76 ANSWER 41 OF 46 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1999:57647 HCAPLUS

DOCUMENT NUMBER: 130:227692

TITLE: Three-dimensional nano-HAp/collagen matrix loading with osteogenic cells in organ culture

AUTHOR(S): Du, C.; Cui, F. Z.; Zhu, X. D.; De Groot, K.

CORPORATE SOURCE: Department of Materials Science and Engineering, Tsinghua University, Beijing, 100084, Peop. Rep. China

SOURCE: Journal of Biomedical Materials Research (1999), 44(4), 407-415

CODEN: JBMRBG; ISSN: 0021-9304

PUBLISHER: John Wiley & Sons, Inc.

DOCUMENT TYPE: Journal

LANGUAGE: English

AB Transplantation of osteogenic cells with a suitable matrix is one strategy for engineering bone tissue. Three-dimensional distribution and growth of cells within the **porous scaffold** are of clin. significance for the repair of large bony defects. A nano-HAp/collagen (nHAC) composite that mimics the natural bone both in compn. and microstructure to some extent was employed as a matrix for the tissue engineering of bone. A **porous** nHAC composite was produced in sheet form and convolved to be a 3-dimensional **scaffold**. Using organ culture techniques and the convolving method, we have developed three-dimensional osteogenic cells/nHAC constructs in vitro. SEM and histol. examn. has demonstrated the development of the cells/material complex. Spindle-shaped cells migrating out of bone fragments continuously proliferated and migrated throughout the network of the coil. The **porous** nHAC **scaffold** provided a microenvironment resembling that seen in vivo, and cells within the composite eventually acquired a tridimensional polygonal shape. In addn., new bone matrix was synthesized at the interface of bone fragments and the composite.

IT **1306-06-5, Hydroxylapatite**

RL: THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(three-dimensional nano-HAp/collagen matrix loading with osteogenic cells in organ culture)

RN 1306-06-5 HCAPLUS

CN Hydroxylapatite (Ca5(OH)(PO4)3) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
HO	1	14280-30-9
O4P	3	14265-44-2
Ca	5	7440-70-2

REFERENCE COUNT: 25 THERE ARE 25 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

- TI Three-dimensional nano-HAp/collagen matrix loading with osteogenic cells in organ culture
- AB Transplantation of osteogenic cells with a suitable matrix is one strategy for engineering bone tissue. Three-dimensional distribution and growth of cells within the **porous scaffold** are of clin. significance for the repair of large bony defects. A nano-HAp/collagen (nHAC) composite that mimics the natural bone both in compn. and microstructure to some extent was employed as a matrix for the tissue engineering of bone. A **porous** nHAC composite was produced in sheet form and convolved to be a 3-dimensional **scaffold**. Using organ culture techniques and the convolving method, we have developed three-dimensional osteogenic cells/nHAC constructs in vitro. SEM and histol. examn. has demonstrated the development of the cells/material complex. Spindle-shaped cells migrating out of bone fragments continuously proliferated and migrated throughout the network of the coil. The **porous** nHAC **scaffold** provided a microenvironment resembling that seen in vivo, and cells within the composite eventually acquired a tridimensional polygonal shape. In addn., new bone matrix was synthesized at the interface of bone fragments and the composite.
- ST HAp **collagen** matrix osteogenic cell organ
- IT Prosthetic materials and Prosthetics
(ceramic, implants; three-dimensional nano-HAp/collagen matrix loading with osteogenic cells in organ culture)
- IT **Ceramics**
(prosthetic implants; three-dimensional nano-HAp/collagen matrix loading with osteogenic cells in organ culture)
- IT Animal tissue culture
Bone
Interface
Microstructure
Organ, animal
Transplant and Transplantation
(three-dimensional nano-HAp/collagen matrix loading with osteogenic cells in organ culture)
- IT **Collagens**, biological studies
RL: THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(three-dimensional nano-HAp/collagen matrix loading with osteogenic cells in organ culture)
- IT **1306-06-5**, Hydroxylapatite
RL: THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(three-dimensional nano-HAp/collagen matrix loading with osteogenic cells in organ culture)

L76 ANSWER 42 OF 46 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1998:496488 HCAPLUS

DOCUMENT NUMBER: 129:193675

TITLE: Preparation of a **chitin**-apatite composite by
in situ precipitation onto **porous**
chitin scaffolds

AUTHOR(S): Wan, Andrew C. A.; Khor, Eugene; Hastings, Garth W.
 CORPORATE SOURCE: Department of Chemistry, National University of
 Singapore, Kent Ridge, 119260, Singapore
 SOURCE: Journal of Biomedical Materials Research (1998),
 41(4), 541-548
 CODEN: JBMRBG; ISSN: 0021-9304
 PUBLISHER: John Wiley & Sons, Inc.
 DOCUMENT TYPE: Journal
 LANGUAGE: English

AB Composites of chitin with calcium phosphate were obtained by in situ pptn. of the mineral from a supersatd. soln. onto chitin **scaffolds**. The chitin **scaffolds** were obtained by freeze drying to give a highly **porous** structure having a polar surface favorable for apatite nucleation and growth. The extent and arrangement of calcium phosphate deposits on the chitin and substituted chitin **scaffolds** were explored. Up to 55% by mass of calcium phosphate could be incorporated into chitin **scaffolds**. Deposits on the chitin surface were of a continuous apatite carpet nature while deposits on carboxymethylated chitin surfaces displayed a spherical morphol. Carboxymethylation of chitin exerts an overall inhibitory effect towards calcium phosphate deposition, but it provides for site-specific nucleation of the mineral **phase**. In situ pptn. can be an important route in the future prodn. of various polymer-calcium phosphate composites.

IT 1306-06-5, Hydroxylapatite

RL: FMU (Formation, unclassified); PEP (Physical, engineering or chemical process); THU (Therapeutic use); BIOL (Biological study); FORM (Formation, nonpreparative); PROC (Process); USES (Uses)

(prepn. of **chitin**-apatite composite by pptn. onto **porous scaffolds**)

RN 1306-06-5 HCAPLUS

CN Hydroxylapatite (Ca5(OH)(PO4)3) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
HO	1	14280-30-9
O4P	3	14265-44-2
Ca	5	7440-70-2

IT 1398-61-4, Chitin

RL: PEP (Physical, engineering or chemical process); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PROC (Process); USES (Uses)

(prepn. of **chitin**-apatite composite by pptn. onto **porous scaffolds**)

RN 1398-61-4 HCAPLUS

CN Chitin (8CI, 9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

REFERENCE COUNT: 24 THERE ARE 24 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

TI Preparation of a **chitin**-apatite composite by in situ precipitation onto **porous chitin scaffolds**

CC 63-7 (Pharmaceuticals)

AB Composites of chitin with calcium phosphate were obtained by in situ pptn. of the mineral from a supersatd. soln. onto chitin **scaffolds**. The chitin **scaffolds** were obtained by freeze drying to give a highly **porous** structure having a polar surface favorable for apatite nucleation and growth. The extent and arrangement of calcium phosphate deposits on the chitin and substituted chitin **scaffolds** were explored. Up to 55% by mass of calcium phosphate could be

incorporated into chitin **scaffolds**. Deposits on the chitin surface were of a continuous apatite carpet nature while deposits on carboxymethylated chitin surfaces displayed a spherical morphol. Carboxymethylation of chitin exerts an overall inhibitory effect towards calcium phosphate deposition, but it provides for site-specific nucleation of the mineral **phase**. In situ pptn. can be an important route in the future prodn. of various polymer-calcium phosphate composites.

- ST **chitin** apatite composite implant; pptn **chitin** apatite composite implant
- IT Bone
(artificial; prepn. of **chitin**-apatite composite by pptn. onto **porous scaffolds**)
- IT Prosthetic materials and Prosthetics
Prosthetic materials and Prosthetics
(composites, implants; prepn. of **chitin**-apatite composite by pptn. onto **porous scaffolds**)
- IT Carboxymethylation
Nucleation
Precipitation (chemical)
(prepn. of **chitin**-apatite composite by pptn. onto **porous scaffolds**)
- IT **1306-06-5, Hydroxylapatite**
RL: FMU (Formation, unclassified); PEP (Physical, engineering or chemical process); THU (Therapeutic use); BIOL (Biological study); FORM (Formation, nonpreparative); PROC (Process); USES (Uses)
(prepn. of **chitin**-apatite composite by pptn. onto **porous scaffolds**)
- IT **1398-61-4, Chitin** 72429-67-5
RL: PEP (Physical, engineering or chemical process); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PROC (Process); USES (Uses)
(prepn. of **chitin**-apatite composite by pptn. onto **porous scaffolds**)
- IT **52519-63-8, Carboxymethyl Chitin**
RL: PEP (Physical, engineering or chemical process); THU (Therapeutic use); BIOL (Biological study); PROC (Process); USES (Uses)
(prepn. of **chitin**-apatite composite by pptn. onto **porous scaffolds**)

L76 ANSWER 43 OF 46 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1998:351802 HCAPLUS

DOCUMENT NUMBER: 129:32290

TITLE: Biopolymer **foams** for use in tissue repair and reconstruction

INVENTOR(S): Bell, Eugene; Sioussat, Tracy M.; Fofonoff, Timothy W.

PATENT ASSIGNEE(S): Tissue Engineering, Inc., USA; Bell, Eugene

SOURCE: PCT Int. Appl., 38 pp.

CODEN: PIXXD2

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 9822154	A2	19980528	WO 1997-US21052	19971112
WO 9822154	A3	19981022		
W: AU, CA, JP				
RW: AT, BE, CH, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE				
AU 9852616	A1	19980610	AU 1998-52616	19971112
AU 727696	B2	20001221		

EP 946127 A2 19991006 EP 1997-947568 19971112
 R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT,
 IE, FI

JP 2001510358 T2 20010731 JP 1998-523811 19971112
 PRIORITY APPLN. INFO.: US 1996-754818 A 19961121
 WO 1997-US21052 W 19971112

AB Single and double d. biopolymer foams, composite biopolymer foams including both single and double d. foams, and methods of prepg. these foams and composite foams are described. Also described are biocompatible constructs which include single or double d. biopolymer foams and extracellular matrix particulates and methods of prepg. these constructs. The foams, composite foams, and biocompatible constructs of the invention can be used in tissue repair and reconstruction. Examples are given for extn. of collagen from porcine fetus skin and prodn. of single d. foam from the extd. collagen.

IT 1306-06-5, Hydroxyapatite 9005-32-7, Alginic acid 10103-46-5, Calcium phosphate

RL: THU (Therapeutic use); BIOL (Biological study); USES (Uses)
 (biopolymer foams for tissue repair and reconstruction)

RN 1306-06-5 HCAPLUS

CN Hydroxylapatite (Ca5(OH)(PO4)3) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
HO	1	14280-30-9
O4P	3	14265-44-2
Ca	5	7440-70-2

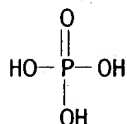
RN 9005-32-7 HCAPLUS

CN Alginic acid (8CI, 9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

RN 10103-46-5 HCAPLUS

CN Phosphoric acid, calcium salt (8CI, 9CI) (CA INDEX NAME)



x Ca

TI Biopolymer foams for use in tissue repair and reconstruction

AB Single and double d. biopolymer foams, composite biopolymer foams including both single and double d. foams, and methods of prepg. these foams and composite foams are described. Also described are biocompatible constructs which include single or double d. biopolymer foams and extracellular matrix particulates and methods of prepg. these constructs. The foams, composite foams, and biocompatible constructs of the invention can be used in tissue repair and reconstruction. Examples are given for extn. of collagen from porcine fetus skin and prodn. of single d. foam from the extd. collagen.

ST biopolymer foam tissue repair

- IT Medical goods
(adhesives; biopolymer foams for tissue repair and reconstruction)
- IT Blood vessel
(artificial; biopolymer foams for tissue repair and reconstruction)
- IT Chondrocyte
Extracellular matrix
Foams
Freeze drying
Gland
(biopolymer foams for tissue repair and reconstruction)
- IT Collagens, biological studies
RL: BOC (Biological occurrence); BSU (Biological study, unclassified); PEP (Physical, engineering or chemical process); THU (Therapeutic use); BIOL (Biological study); OCCU (Occurrence); PROC (Process); USES (Uses)
(biopolymer foams for tissue repair and reconstruction)
- IT Biopolymers
Elastins
Fibrinogens
Fibronectins
Glycoproteins, general, biological studies
Laminins
Peptides, biological studies
RL: THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(biopolymer foams for tissue repair and reconstruction)
- IT Dental materials and appliances
(cements; biopolymer foams for tissue repair and reconstruction)
- IT Prosthetic materials and Prosthetics
(composites; biopolymer foams for tissue repair and reconstruction)
- IT Dental materials and appliances
(implants; biopolymer foams for tissue repair and reconstruction)
- IT Adhesives
(medical; biopolymer foams for tissue repair and reconstruction)
- IT Ligament
(periodontal; biopolymer foams for tissue repair and reconstruction)
- IT Liver
(tissue; biopolymer foams for tissue repair and reconstruction)
- IT 9059-25-0, Lysyl oxidase
RL: PEP (Physical, engineering or chemical process); PROC (Process)
(biopolymer foams for tissue repair and reconstruction)
- IT 1306-06-5, Hydroxyapatite 9002-89-5, Polyvinyl alcohol
9005-32-7, Alginic acid 9007-28-7, Chondroitin sulfate 10103-46-5, Calcium phosphate
RL: THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(biopolymer foams for tissue repair and reconstruction)

L76 ANSWER 44 OF 46 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1996:750098 HCAPLUS

DOCUMENT NUMBER: 126:65296

TITLE: Porous hydroxyapatite reinforced with collagen protein

AUTHOR(S): Zhang, Qi-Qing; Ren, Lei; Wang, Chun; Liu, Ling-Rong;
Wen, Xue-Jun; Liu, Yu-Hua; Zhang, Xing-Dong

CORPORATE SOURCE: Institute Biomedical Engineering, Chinese Academy
Medical Sciences, Tianjin, 300192, Peop. Rep. China
SOURCE: Artificial Cells, Blood Substitutes, and
Immobilization Biotechnology (1996), 24(6), 693-702
CODEN: ABSBE4; ISSN: 1073-1199
PUBLISHER: Dekker
DOCUMENT TYPE: Journal
LANGUAGE: English

AB Porous hydroxyapatite (HAP) with certain porosity and pore size was
prepd., and incorporated with bovine collagen protein. The compn. and
structure of the HAP was confirmed by X-Ray Diffraction (XRD) and ICP.
Collagen protein with low antigenicity was obtained from bovine tendon by
enzyme digestion, and was then forced to fill in the HAP matrix to form
composites. SEM, Mech. tests and in vitro degn. were performed. The
test results show that first, HAP thus made has specific pore size and
directions; second, mech. properties of the composites have been markedly
improved; third, the in vitro degn. rate of the composite is almost the
same as and mainly controlled by the degn. rate of collagen.

IT 1306-06-5, Hydroxyapatite
RL: DEV (Device component use); THU (Therapeutic use); BIOL (Biological
study); USES (Uses)

(porous hydroxyapatite reinforced with collagen protein)

RN 1306-06-5 HCAPLUS

CN Hydroxylapatite (Ca5(OH)(PO4)3) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
HO	1	14280-30-9
O4P	3	14265-44-2
Ca	5	7440-70-2

TI Porous hydroxyapatite reinforced with collagen protein

ST porous hydroxyapatite reinforcement collagen prosthetic
composite

IT Prosthetic materials and Prosthetics
(composites; porous hydroxyapatite reinforced with collagen
protein)

IT Pore size
(porous hydroxyapatite reinforced with collagen protein)

IT Collagens, biological studies
RL: DEV (Device component use); THU (Therapeutic use); BIOL (Biological
study); USES (Uses)

(porous hydroxyapatite reinforced with collagen protein)

IT 1306-06-5, Hydroxyapatite
RL: DEV (Device component use); THU (Therapeutic use); BIOL (Biological
study); USES (Uses)

(porous hydroxyapatite reinforced with collagen protein)

L76 ANSWER 45 OF 46 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1995:758878 HCAPLUS

DOCUMENT NUMBER: 123:152991

TITLE: Biodegradable periodontal implant precursor

INVENTOR(S): Polson, Alan M.; Swanbom, Deryl D.; Dunn, Richard L.;
Cox, Charles P.; Norton, Richard L.; Lowe, Bryan K.;
Peterson, Kenneth S.

PATENT ASSIGNEE(S): Atrix Laboratories, Inc., USA

SOURCE: Can. Pat. Appl., 56 pp.

CODEN: CPXXEB

DOCUMENT TYPE: Patent

LANGUAGE: English
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
CA 2117394	AA	19950329	CA 1994-2117394	19940707
AU 9466142	A1	19950413	AU 1994-66142	19940705
JP 07163654	A2	19950627	JP 1994-196132	19940728
EP 649662	A1	19950426	EP 1994-113193	19940824
EP 649662	B1	20020206		
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IE, IT, LI, LU, MC, NL, PT, SE				
EP 1147781	A1	20011024	EP 2001-117430	19940824
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI				
AT 212866	E	20020215	AT 1994-113193	19940824
ES 2173102	T3	20021016	ES 1994-113193	19940824
PRIORITY APPLN. INFO.:				
			US 1993-127642	A 19930928
			EP 1994-113193	A3 19940824

AB A biodegradable implant precursor has a 2-part structure made of an outer sac and a liq. content. The implant precursor is composed of a biodegradable, water-coagulable thermoplastic polymer and a water-miscible org. solvent. When administered to an implant site in an animal, the implant precursor will solidify in situ to a solid, microporous matrix by dissipation of the org. solvent to surrounding tissue fluids and coagulation of the polymer. Methods of making the implant precursor, an app. for forming the precursor, and a kit contg. the app. are described. Also provided are methods of using the implant precursor for treating a tissue defect in an animal, e.g. for enhancing cell growth and tissue regeneration, wound and organ repair, nerve regeneration, and soft and hard tissue regeneration, for delivery of biol. active substances to tissue or organs, etc. Thus, a mixt. of poly(DL-lactide) (mol. wt. 65,000) 37 and N-methyl-2-pyrrolidone 63% was sterilized with .gamma.-radiation, confined between 2 saline-satd. porous polyethylene substrates for 6 min, and removed. The resulting implant precursor comprised an opaque, semirigid, flexible, 2-part structure with a gelatinous, semirigid outer layer and a more liq. core.

IT 1398-61-4, Chitin 24980-41-4, Polycaprolactone
 25248-42-4, Polycaprolactone 26009-03-0, Polyglycolide
 26023-30-3, Poly[oxy(1-methyl-2-oxo-1,2-ethanediyl)]
 26680-10-4, Polylactide 51063-13-9
 RL: DEV (Device component use); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
 (biodegradable periodontal implant precursor)

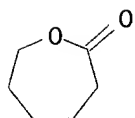
RN 1398-61-4 HCAPLUS
 CN Chitin (8CI, 9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

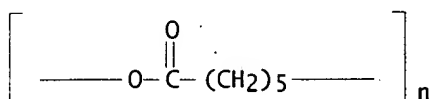
RN 24980-41-4 HCAPLUS
 CN 2-Oxepanone, homopolymer (9CI) (CA INDEX NAME)

CM 1

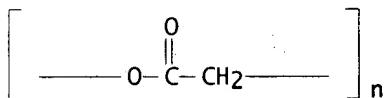
CRN 502-44-3
 CMF C6 H10 O2



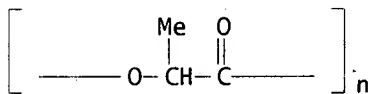
RN 25248-42-4 HCAPLUS
 CN Poly[oxy(1-oxo-1,6-hexanediyl)] (9CI) (CA INDEX NAME)



RN 26009-03-0 HCAPLUS
 CN Poly[oxy(1-oxo-1,2-ethanediyl)] (9CI) (CA INDEX NAME)



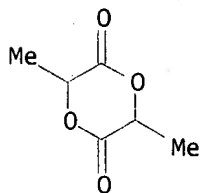
RN 26023-30-3 HCAPLUS
 CN Poly[oxy(1-methyl-2-oxo-1,2-ethanediyl)] (8CI, 9CI) (CA INDEX NAME)



RN 26680-10-4 HCAPLUS
 CN 1,4-Dioxane-2,5-dione, 3,6-dimethyl-, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 95-96-5
 CMF C6 H8 O4



RN 51063-13-9 HCAPLUS
 IT 1306-06-5, Hydroxylapatite 7758-87-4, Tricalcium phosphate 7778-18-9, Calcium sulfate
 RL: DEV (Device component use); USES (Uses)
 (support substrate; biodegradable periodontal implant precursor)

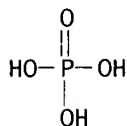
RN 1306-06-5 HCAPLUS

CN Hydroxylapatite (Ca₅(OH)(PO₄)₃) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
HO	1	14280-30-9
O4P	3	14265-44-2
Ca	5	7440-70-2

RN 7758-87-4 HCAPLUS

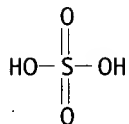
CN Phosphoric acid, calcium salt (2:3) (8CI, 9CI) (CA INDEX NAME)



3/2 Ca

RN 7778-18-9 HCAPLUS

CN Sulfuric acid, calcium salt (1:1) (8CI, 9CI) (CA INDEX NAME)



Ca

CC 63-7 (Pharmaceuticals)

AB A biodegradable implant precursor has a 2-part structure made of an outer sac and a liq. content. The implant precursor is composed of a biodegradable, water-coagulable thermoplastic polymer and a water-miscible org. solvent. When administered to an implant site in an animal, the implant precursor will solidify in situ to a solid, microporous matrix by dissipation of the org. solvent to surrounding tissue fluids and coagulation of the polymer. Methods of making the implant precursor, an app. for forming the precursor, and a kit contg. the app. are described. Also provided are methods of using the implant precursor for treating a tissue defect in an animal, e.g. for enhancing cell growth and tissue regeneration, wound and organ repair, nerve regeneration, and soft and hard tissue regeneration, for delivery of biol. active substances to tissue or organs, etc. Thus, a mixt. of poly(DL-lactide) (mol. wt. 65,000) 37 and N-methyl-2-pyrrolidone 63% was sterilized with gamma.-radiation, confined between 2 saline-satd. porous polyethylene substrates for 6 min, and removed. The resulting implant precursor comprised an opaque, semirigid, flexible, 2-part structure with a gelatinous, semirigid outer layer and a more liq. core.

IT Pore

(-forming agents; biodegradable periodontal implant precursor)

IT Phosphazene polymers

Polyamides, biological studies

Polyanhydrides

Polycarbonates, biological studies

Polyoxyalkylenes, biological studies

Urethane polymers, biological studies

RL: DEV (Device component use); THU (Therapeutic use); BIOL (Biological study); USES (Uses)

(biodegradable periodontal implant precursor)

IT

Blood

(components, **support** substrates; biodegradable periodontal implant precursor)

IT

Carbohydrates and Sugars, uses

Salts, uses

RL: MOA (Modifier or additive use); USES (Uses)

(**pore**-forming agents; biodegradable periodontal implant precursor)

IT

Plastics

RL: DEV (Device component use); USES (Uses)

(**porous**, **support** substrates; biodegradable periodontal implant precursor)

IT

Thrombus and Blood clot

(**support** substrate; biodegradable periodontal implant precursor)

IT

Glass, oxide

RL: DEV (Device component use); USES (Uses)

(**support** substrate; biodegradable periodontal implant precursor)

IT

Ceramic materials and wares

(**support** substrates; biodegradable periodontal implant precursor)

IT

Gelatins, uses

RL: DEV (Device component use); USES (Uses)

(**support** substrates; biodegradable periodontal implant precursor)

IT

Animal tissue

(hard, **support** substrate; biodegradable periodontal implant precursor)

IT

Polyesters, biological studies

RL: DEV (Device component use); THU (Therapeutic use); BIOL (Biological study); USES (Uses)

(polyamide-, biodegradable periodontal implant precursor)

IT

110-15-6D, Succinic acid, esters with polyoxyalkylenes 144-62-7D, Oxalic acid, esters with polyoxyalkylenes 463-84-3D, Orthocarbonic acid, esters, polymers **1398-61-4**, Chitin 9003-09-2,

Poly(methyl vinyl ether) 9012-76-4, Chitosan **24980-41-4**,

Polycaprolactone **25248-42-4**, Polycaprolactone **26009-03-0**

, Polyglycolide **26023-30-3**, Poly[oxy(1-methyl-2-oxo-1,2-

ethanediyl)] 26202-08-4, Polyglycolide **26680-10-4**, Polylactide

31621-87-1, Polydioxanone **51063-13-9** 52352-27-9,

Poly(hydroxybutyric acid) 78644-42-5, Poly(malic acid) 102190-94-3

RL: DEV (Device component use); THU (Therapeutic use); BIOL (Biological study); USES (Uses)

(biodegradable periodontal implant precursor)

IT

9004-34-6D, Cellulose, oxidized

RL: DEV (Device component use); USES (Uses)

(foam, **support** substrate; biodegradable periodontal implant precursor)

IT

1306-06-5, Hydroxylapatite **7758-87-4**, Tricalcium

phosphate **7778-18-9**, Calcium sulfate 9003-39-8, PVP

9004-62-0, Hydroxyethylcellulose 9004-64-2, Hydroxypropylcellulose

12597-68-1, Stainless steel, uses
 RL: DEV (Device component use); USES (Uses)
 (support substrate; biodegradable periodontal implant
 precursor)

L76 ANSWER 46 OF 46 HCAPLUS COPYRIGHT 2003 ACS
 ACCESSION NUMBER: 1984:157808 HCAPLUS
 DOCUMENT NUMBER: 100:157808
 TITLE: Porous polymer moldings
 PATENT ASSIGNEE(S): Toyo Polymer Co., Ltd., Japan
 SOURCE: Jpn. Kokai Tokkyo Koho, 4 pp.
 CODEN: JKXXAF
 DOCUMENT TYPE: Patent
 LANGUAGE: Japanese
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 58189242	A2	19831104	JP 1982-74174	19820430
PRIORITY APPLN. INFO.:			JP 1982-74174	19820430

AB Thicks section of porous, permeable polymers, are manuf. by dissolving or swelling the polymer in an appropriate solvent or a mixt. of solvents and nonsolvents, mixing in extractable fillers, molding the compn. and treating with a nonsolvent or nonsolvent vapor to gel it, and extg. the fillers either before or after the molding. Thus, Hi Lac 1061 [89338-68-1] (polyester-polyurethane) 25, DMF 40, poly(vinyl alc.) [9002-89-5] 5, algenic acid [9005-32-7] 20, and CaSO₄ 10 parts were mixed, degassed, charged to a mold line with 2-mm layers of center polypropylene (void fraction 45%), which was than burst in water at 50.degree. for 6 h to gel the polymers and ext. DMF and fillers leaving a molding 20 mm thick, having d. 0.18 g/cm³, porosity 90%, and av. pore diam. 300 .mu..

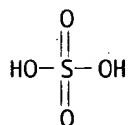
IT 7778-18-9

RL: USES (Uses)

(extractable filler, for manuf. of thick porous polymer moldings)

RN 7778-18-9 HCAPLUS

CN Sulfuric acid, calcium salt (1:1) (8CI, 9CI) (CA INDEX NAME)



Ca

TI Porous polymer moldings

AB Thicks section of porous, permeable polymers, are manuf. by dissolving or swelling the polymer in an appropriate solvent or a mixt. of solvents and nonsolvents, mixing in extractable fillers, molding the compn. and treating with a nonsolvent or nonsolvent vapor to gel it, and extg. the fillers either before or after the molding. Thus, Hi Lac 1061 [89338-68-1] (polyester-polyurethane) 25, DMF 40, poly(vinyl alc.) [9002-89-5] 5, algenic acid [9005-32-7] 20, and CaSO₄ 10 parts were mixed, degassed, charged to a mold line with 2-mm layers of center

polypropylene (void fraction 45%), which was than burst in water at 50.degree. for 6 h to gel the polymers and ext. DMF and fillers leaving a molding 20 mm thick, having d. 0.18 g/cm3, **porosity** 90%, and av. pore diam. 300 .mu..

- ST **porous** polymer molding gelation extn; coagulation extn molding
- porous** polymer; permeable polymer thick section molding
- IT **Porous** materials and Cellular materials
(polymers, thick section manuf. by molding with coagulation and fillers extn.)
- IT **Molding of plastics and rubbers**
(with coagulation and extn. of fillers, for thick, **porous** section)
- IT **Urethane polymers, uses and miscellaneous**
RL: PREP (Preparation)
(polyester-, molding, **porous**, permeable, manuf. by molding, coagulation and filler extn.)
- IT **7778-18-9 9002-89-5 9004-67-5 9005-32-7 10043-52-4, uses**
and miscellaneous
RL: USES (Uses)
(extractable filler, for manuf. of thick **porous** polymer moldings)
- IT 101-68-8DP, polymers with ethylene glycol and polyester 107-21-1DP,
polymers with p,p'-diphenylmethane diisocyanate and polyester 9004-35-7P
89338-51-2P 89338-68-1P
RL: PREP (Preparation)
(molding, **porous**, permeable, manuf. by molding, coagulation and filler extn.)

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